

UNIVERSITY OF KWAZULU-NATAL

**Consumer understanding of green symbols on beverage packaging and its
influence on green behaviour**

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DECLARATION

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ABSTRACT

Climate change is no longer an idealistic but rather a critical reality faced by people worldwide with severe and urgent forecasts for the future. It is all very well for marketers to go green and implement green marketing initiatives such as the placement of green symbols on packaging; however, for sustainability to be achieved, consumers need to behave in a green manner. The purpose of this research was to evaluate consumer understanding of green symbols on beverage packaging and determine the implications for green behaviour.

The study makes a practical contribution as it will assist marketers to understand what aspects of their green labelling communication influences consumers' buying behaviour. The contributions of this study are in understanding the role that knowledge plays in terms of behaviour and understanding the content of that knowledge. The study applied a cross-sectional descriptive research design and adopted a quantitative approach. Data was collected through an online questionnaire sent through Facebook, applying snowball mom-probability sampling resulting in 325 participants.

Findings reveal that although about half of the respondents buy non-alcoholic beverage products that can be reused or recycled, behaviour to purchase products with green symbols is low. While non-alcoholic beverages are frequently bought, only about a third of respondents look for green symbols when making this purchase. Consumer knowledge of green symbols, attitudes toward green symbols, and the level of confidence consumers have in green symbols, has a positive impact on green behaviour. Moreover, consumer demographic factors affect attitudes and behaviour relating to green symbols on beverage packaging. Recommendations for marketers and government are to try and increase consumers' level of knowledge of green symbols by establishing educational programs. Recommendations for future research are to use a probability sampling technique for better generalization of findings, and research how environmental studies are incorporated in educational institutions at all educational levels.

Key words: Green symbols, green behaviour, green marketing, knowledge, confidence

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CHAPTER 1: INTRODUCTION

1.1. Introduction

Climate change is no longer a fantasy but rather a critical reality faced by people worldwide with severe and urgent forecasts for the future (Eckstein, Künzel, Schäfer, & Winges, 2019, p. 5; Hayes, Blashki, Wiseman, Burke, & Reifels, 2018, p. 1). The Global Climate Risk Index 2020 by Eckstein et al. (2019) reports that approximately 495 000 people globally died between 1999 and 2018, resulting from 12 000 dangerous weather events and losses of US\$ 3.54 trillion. Society engages in socioeconomic activities daily, which harm the environment, but never notice the effects (Bhatia & Jain, 2013, p. 1). Therefore, consumers must play an essential role in promoting sustainability through their actions and consumption behaviours (Ng & Chan, 2020, p. 1). Zhang and Zhao (2012, p. 901) argue that packaging is one of the contributors to environmental issues since there is waste and air pollution in its production.

In a strategic response, businesses are introducing new brands and products that promote positive social and environmental results (Yang, Lu, Zhu, & Su, 2015, p. 2663). Businesses from different sectors are implementing initiatives to combat the issue of climate change through green marketing (Finisterra do Paço & Raposo, 2010, p. 287). Green marketing, explained by Groening, Sarkis, and Zhu (2018, p. 1850), is the marketing of products with less harm to the environment to persuade consumers to buy green products and services while reducing adverse environmental impacts. Green marketing includes modifying products, advertising, and even changes in the packaging (Mahmoud, 2018, p. 127). Lihhavtshuk (2015, p. 35) classifies numerous activities involved in green marketing that many companies in the beverage industry undertake, namely, green labelling using green symbols, green packaging and altering the production process.

However, green products often cost more so they can cover all the costs associated with the manufacturing of these green symbols when the engagement of environmental practices takes place (Delmas & Grant, 2008, p. 2). In addition, Razzaque (2003, p. 1) states that eco-labelling can lead to high costs as a result of altering processes in order to get certification and place eco-labels on packaging, which might not have a good financial impact on developing countries.

There is concern as the costs of producing green products are 20% higher than that of general commodities (Lin & Niu, 2018, p. 1680). Nevertheless, 30% of consumers were willing to pay a higher price for green products and green energy (Lin & Niu, 2018, p. 1680).

A study by Rokka and Uusitalo (2008, p. 520) in Finland reported that one-third of consumers support and prioritize environmentally friendly labelled products as the top attribute that determines the products that they purchase as their way of contributing to environmental preservation. A directly similar study could not be found in a South African sample. However, Marx-Pienaar and Erasmus (2013) conducted a study to provide experiential evidence of South African consumers' awareness of the consequences associated with excessive consumption of fresh produce to determine measures that can be taken to promote more sustainable behaviour. Respondents were found to have only moderate awareness and knowledge of climate change and the environment (Marx-Pienaar & Erasmus, 2013). A study by Scott and Vigar-Ellis (2014, p. 642) examined the knowledge and perceptions of South African respondents concerning environmentally friendly packaging and found that respondents had only some understanding of the meaning of environmentally friendly packaging or how it was different to traditional packaging. Thus, South African consumer knowledge of green symbols may also be found to be limited and thus limited green behaviour (Issock, Mpinganjira, & Roberts-Lombard, 2019, p. 412).

It is all very well for marketers to go green and implement green marketing initiatives, but for sustainability to be achieved, consumers need to behave in a green manner. They need to buy the products with green packaging and need to respond positively to the green eco-labels (Horne, 2009, p. 179; Pedersen & Neergaard, 2006, p. 17). For consumers to respond positively, not only requires that they care about the environment but that they understand the symbols and that they use them to make product choices (Rokka & Uusitalo, 2008, p. 517). This research aims to explore South African consumers' understanding of green symbols on beverage packaging and the effect this has on green behaviour.

1.2. Background of the study

Fighting climate change and providing environmental protection is a vital topic amongst political leaders and general citizens in the world who are worried about this issue (Currie & Choma, 2018, p. 247; Peskett, Grist, Hedger, Lennartz-Walker, & Scholz, 2020, p. 5).

In recent decades, the environmental crisis caused by socioeconomic factors has been one of the biggest issues in the world (Dunlap & Jorgenson, 2012, p. 1; EBADI, Toughani, Najafi, & Babae, 2020, p. 1). Moreover, ozone layer depletion, the effects of greenhouse gases and global warming are world issues and have adverse effects on people, with related high costs (Eckstein et al., 2019, p. 5; Papadimitriou, 2004, p. 299).

The consequences of climate change includes a rise in life-threatening weather conditions, including floods, droughts, and intense storms (Evans, 2019, p. 449). Climate change effects threatens human health, such as risks to psychological health (Hayes et al., 2018, p. 1), as an increase in high temperature leads to possible mental suffering (Evans, 2019, p. 449). As pointed out by Hayes et al. (2018, p. 1), the World Health Organization (WHO) forecast 250,000 deaths per year for the period 2030 to 2050 caused by disregarded impacts of climate change, which include break bone fever, malaria, and respiratory illnesses. Climate change impacts the economy negatively, mainly in developing countries, while abnormal rainfall has a considerable impact on economic growth in sub-Saharan Africa (Tol, 2018, p. 12). Climate change is a danger to smallholder farmers as most of them depend on rain-fed agriculture, which leads to food insecurity, weakens poverty alleviation and sustainable development globally (Harvey et al., 2018, p. 2).

According to Lee, Markowitz, Howe, Ko, and Leiserowitz (2015, p. 1014), climate change is a danger not only to humans but also to the natural environment. Nevertheless, peoples' awareness of environmental problems is increasing, and they are changing their actions that harm the environment as their response to the issue. However, their responsiveness differs significantly (Bhatia & Jain, 2013, p. 1; Yates, 2009, p. 9). In a report by Joshi and Rahman (2015, p. 128) they identified household purchases to be contributing 40% towards environmental damage, and through the purchase of green products, consumers can prevent damage to the environment. Research by Tobler (2011) indicated that private and public demand from housing and energy, and nutrition generates 62% of total emissions, of which households directly emit 26% with 74% being as a result of the manufacturing of goods.

Concerns about the production waste which negatively affect the environment have been raised by consumers and manufactures (Bhatia & Jain, 2013, p. 1). It is argued by Zhang and Zhao (2012, p. 901) that packaging is a major contributor to environmental issues. The world generated 242 million tonnes of plastic waste in 2016 and Sub-Saharan Africa is expected to triple the waste it generates by 2050 from present levels (The World Bank, 2018, p.3).

Due to the costs and inconveniences involved, consumers may not be willing to alter their behaviours, although they are mindful of their impact on the environment Tobler (2011, p. 3). Research to determine if people are eager to behave differently because of green symbols is necessary to determine if Tobler's belief holds true for South African consumers.

1.3. Research problem

Companies from different sectors, which are market-driven, are taking the initiative to develop new products and processes that have minimal adverse effects on the environment (Finisterra do Paço & Raposo, 2010, p. 287; Mukonza & Swarts, 2020, p. 838). They may have identified the marketing opportunity of green initiatives or activities and are working to position themselves as businesses that take responsibility for the environment for environmentally concerned consumers (Finisterra do Paço & Raposo, 2010, p. 278; Khan, Royhan, Rahman, Rahman, & Mostafa, 2020, p. 17; Mukonza & Swarts, 2020, p. 838).

Lihhavgshuk (2015, p. 37) states that green marketing, through the placement of green symbols, is one of the actions taken by marketers to increase general sales of any product. Moreover, Rokka and Uusitalo (2008, p. 516) argue that consumers end up having a positive image about the company as a result of movements developed to preserve the environment, hence the willingness of the consumers to buy more of the company's products improves as they hold the belief that the corporation makes the environment a priority. Therefore, it is important to conduct research to determine whether consumers make green choices and that they don't just hold a positive attitude about the company.

There have been some studies on consumer understanding of green symbols on food packaging and its influence on green behaviour in different countries. Examples of studies include one by Grunert, Hieke, and Wills (2014, p. 177), which was an online survey of six countries in Europe, namely; Poland, Germany, Sweden, France, the UK, and Spain, with 4408 consumers who participated. The authors found the level of understanding of green symbols to be low, even for those consumers who are concerned about sustainable issues, also showing significant effects of demographic factors (Grunert et al., 2014, p. 184).

Other studies related to the impacts of green symbols have been conducted in Malaysia, such as those by Kong, Harun, Sulong, and Lily (2014) and Rashid (2009). Kong et al. (2014, p. 933) study focused on consumers in Sabah and discovered that eco-labels had a significant favourable influence on green purchase intention. The survey by Rashid (2009, p. 135) also revealed purchase intention and eco-labels to be positively correlated.

However, the authors report that respondents still needed more exposure and knowledge of environmental experiences for them to make green choices (Rashid (2009, p. 136).

It was revealed that consumers' understanding of green symbols in China had a positive influence on green behaviour, however, respondents were also reported to still want more knowledge of green symbols (Zhao, Gao, Wu, Wang, & Zhu, 2014, p. 143). Another study conducted in China by Cai, Xie, and Aguilar (2017, p. 207) found eco-labels to have a positive and significant impact on purchase intentions of consumers. In Italy, a study by Testa, Iraldo, Vaccari, and Ferrari (2015, p. 258) on Italian consumers found that eco-labels significantly increased consumers green purchasing and behaviour. Thus, knowledge and understanding of green symbols has been found to positively affect purchase intentions.

In South Africa, Anvar and Venter (2014) and Scott and Vigar-Ellis (2014) conducted research about green products but not specifically related to green symbols. In addition, no other studies could be found that determine the level of understanding of green symbols and the effect this has on green consumption. Thus, little is known about this relationship in the South African context. Although green symbols are displayed to influence green choices of consumers (Kong et al., 2014, p. 197), more information is needed to determine if the existence of green symbols has any influence on how people behave within the South African context. The study focused on hand-held water and energy drinks as consumers usually carry these with them for their convenience, and consumption of these products is high (Ronquest-Ross, Vink, & Sigge, 2015, p. 10).

Companies are going green and one way they do that is through green symbols; however, green symbols rely on consumers to understand what the symbols mean. It is not known whether South African consumers understand the meaning of the green symbols that are being used to communicate the environmental sustainability of products. The marketing problem is that if marketing communication is not understood by consumers it will not have the positive effect that it should to influence green behaviour. Symbols can affect behaviour, but if they are not understood by consumers, there will be no effect.

There are lots of green symbols used in South Africa and therefore, it is possible that consumers do not necessarily understand all the symbols. Therefore, there is a need to know which ones they understand and do not understand and the effects of knowledge relative to other factors found to influence behaviour.

1.4. Research purpose and objectives

The purpose of this research was to evaluate consumer understanding of green symbols on beverage packaging and determine the implications for green behaviour.

The objectives of the research were thus, to determine:

1. Consumers' green behaviour with regards to beverages with green symbols;
2. Consumers' knowledge of green symbols, and its impact on green behaviour;
3. Consumers' attitude toward green symbols, and its impact on green behaviour;
4. Consumers' confidence in green symbols and its impact on green behaviour
5. The effect of demographic factors on knowledge, attitudes, confidence and behaviour relating to green symbols on beverage packaging.

1.5. Overview of the literature review

Green behaviour is behaviour that has a minimum impact on the environment (Mishal, Dubey, Gupta, & Luo, 2017, p. 686). The literature review defines green behaviour and discusses its role in sustainability. Different theories, and models of green behaviour are discussed to better understand what is known in terms of the consumer behavioural factors affecting green behaviour but also to highlight the gap that exists as a motivation for the study.

Theory of Planned Behaviour (TPB) and other frameworks of green behaviour contribute to the development of the conceptual framework of this study. TPB proposes important constructs such as attitude towards the behaviour, which contributes to a consumer's intention and eventually leads to behaviour. The model of green behaviour by Liobikienė, Mandravickaitė, and Bernatoniene (2016) contributes the knowledge of green products which affects the confidence consumers have in green products and affect their green purchase behaviour. Lastly, the demographics and green consumer behaviour variables come from the framework of green behaviour by Zhao et al. (2014).

All this contributes to the development of the conceptual framework of this study to understand the dependent and independent variables of the study better to address the objectives. The dependent variables of the study are the knowledge of green issues and symbols, confidence in green symbols, attitude towards green symbols and green behaviour, while the demographics are the independent variables.

The types of green symbols that are found on beverage packages in South Africa are also described to understand which symbols South African consumers are exposed to. These were important in the development of the research instrument.

1.6. Overview of the methodology

As the purpose of the research was to obtain consumer understanding and perceptions of green symbols and their impact on green behaviour, a cross-sectional descriptive research design was used along with a quantitative approach. Data was collected through an online questionnaire that was sent through Facebook and a snowball non-probability sampling technique was applied resulting in 325 participants. The research philosophy underlying this study is positivist. To ensure ethics, the researcher received ethical clearance from the University of KwaZulu-Natal's Research Office to conduct this study and responses received from the participants were kept confidential. Prior to analyses of a questionnaire the reliability and validity were established. Cronbach Alpha was used to evaluate the reliability of the results of the questionnaire and research had high reliability. There was high validity as well as content validity, face validity, criterion validity and discriminant validity were tested. The relationships between constructs was analyzed using multiple regression analysis and the effects of demographics on the constructs, using ANOVAs and t-tests.

1.7. Delimitation

This study is limited to adults, 18 years and above, in South Africa who are active users of Facebook. Facebook is well used by adults in South Africa and a useful tool for building a snowball sample (Hausmann et al., 2018, p. 2; Nyoni & Velempini, 2018, p. 1). In terms of scope, the study only focuses on consumer behaviour as a result of knowledge and understanding of green symbols on non-alcohol beverage packaging.

1.8. Contribution

The study is significant in the sense that it will benefit marketers by helping them understand what consumers understand by and about green symbols and how this affects their behaviour. It helps them in their symbol design and placement as well as marketing communication with consumers to better appeal to them. If the study was not conducted, then marketers might end up wasting money by placing symbols that are not understood by customers and have no influence on their buying behaviour, hence the issue of global warming and environmental degradation will not be resolved or minimized.

There are theory contributions of this study in terms of understanding the role that knowledge plays in terms of behaviour and understanding the content of that knowledge. Many studies look at the relationship between attitude, knowledge and behaviours but not looking at the content of that knowledge which is what the study is looking at.

1.9. Overview of the dissertation

As the study aims to explore consumer understanding of green symbols and impact on green behavioural intention, a review of literature showing past research and models helps develop the concept to better understand the constructs to be measured and tested. Analysis and findings provide what was discovered in line with the hypothesis. This leads to a discussion of the results bringing in the conceptual framework of the study in order to test all the constructs of this study and give conclusions on all the objectives which will allow the recommendations for marketers and future research as well.

1.10. Conclusion

This chapter has introduced the study in terms of its importance, its background and what problem currently exists that the society is facing which needs be addressed. Research objectives and hypotheses have been clearly stated to understand the main focus of this study. It then covered the limits to the scale and scope of the research. After that, an overview of the literature review was given as well as that of the methodology. The contribution of the current study was explained to outline its significance not only to South Africa, but to the rest of the world as well who will benefit from this research. The following chapter gives a review of literature and further develops the conceptual model of the study.

CHAPTER 2: GREEN BEHAVIOUR & THE DEVELOPMENT OF THE CONCEPTUAL FRAMEWORK FOR THE STUDY

2.1 Introduction

While some effort has been made in transforming the structure of the production cycle of industries to make it cleaner and more efficient, the impact of product consumption by consumers on the environment has not been addressed (Wang, Liu, & Qi, 2014, p. 152). Therefore, while social initiatives, economic policies and ecological technologies are critical to the sustainability of the economy (Zhao et al., 2014, p. 143), the influence of these factors depends on implementing changes in consumption and behaviour patterns. This chapter begins with a discussion on green behaviour and how it addresses the environmental crisis and sustainability. After that, models of green behaviour as well as literature on the effects of these and other factors affecting green consumption behaviour are critically discussed as the basis for the development of the study's conceptual framework. The key factors included are knowledge, attitudes and confidence in green symbols. As the study looks specifically at the role of green symbols in green behaviour, consumer's green knowledge, knowledge of green symbols, and factors affecting the influence of green symbols are addressed in more detail. The role of demographic factors in green behaviour are also explored.

2.2 Green behaviour

Environmentalism has shown consumers' embracing sustainable consumption behaviour, which is shown by the fact that as consumers' awareness of environmental issues associated with consumption increase, they become more interested in buying products that are environmentally friendly in order to protect the environment for future generations (Paul, Modi, & Patel, 2016, p. 123). Satisfying personal needs remain essential but conserving the environment has become the key concern for consumers (Paul et al., 2016, p. 123). Minimizing the environmental impact of products and achieving sustainability may be obtained by encouraging green behaviour (Liobikienė & Bernatoniene, 2017, p. 109; Paul et al., 2016, p. 123). Green consumption, as defined by Yang et al. (2015, p. 2664) is a consumption activity that is satisfactory to human wants and needs but with minimal environmental impact. Tan, Johnstone, and Yang (2016, p. 289) add that green consumption is associated with protecting, being responsible, and caring for the environment.

Green consumption is where consumers consider how consumption and disposal of green products and services will affect the environment (Joshi & Rahman, 2015, p. 128), while green purchasing is precisely the purchasing of green products and services and not purchasing environmentally unfriendly products or products that can be destructive to the environment (Jalali & Khalid, 2019, p. 51; Joshi & Rahman, 2015, p. 129). In addition, green purchase behaviour and green purchase intention are generally used to measure green purchasing (Joshi & Rahman, 2015, p. 129). Green purchase intention refers to how ready an individual is to buy green products, which triggers factors that affect their green purchase behaviour (Jalali & Khalid, 2019, p. 128).

Several definitions of green behaviour were found in the literature. Mishal et al. (2017, p. 686) define green behaviour, also known as pro-environmental behaviour, as a collection of behaviours that have minimal harm toward the environment through things such as waste reduction, reducing the usage of energy, preserving water and abstaining from buying goods that are known to be toxic to the environment. Green behaviour is also defined by Li, Du, and Long (2019, p. 4) as an environmentally friendly behaviour such as energy-saving behaviour, clean production that does not harm the environment, green purchasing and consumption, recycling, removal of household waste, and voting for green political parties. The authors further state that green behaviour is closely linked to people's houses, food and clothes, which they can re-use and it all involves production.

Another definition by Tan et al. (2016, p. 289) explains green behaviour as the consumers' behaviour that includes recycling, conserving water and all its channels, carrying own shopping bags to shops, and behaviours such as recycling and reusing, as well as purchasing and consuming economically friendly products. Viviers, Botha, and Marumo (2019, p. 3) define green behaviour as actions that benefit the environment in different fields including energy-efficiency, reducing waste, water-efficiency, green transportation substitutions, green marketing alternatives, recycling, re-using, purchasing environmentally friendly products and contributing financially to projects that aim at conserving the environment. The last definition by Grant, Dabija, and Bejan (2018, p. 181) describes green behaviour as practices or actions such as recycling, purchasing and using green products which not only contribute to environmental protection but to people's health as well.

From these definitions 3 elements of green behaviour were chosen to represent the green behaviour construct in the study, namely; Purchasing, Recycling, and Reusing. These are common green behaviours, but which are particularly relevant to beverage products which can be reused or recycled easily.

Green behaviour helps address the environmental crises as it is the consumption of goods with little to no pollution or disturbance to the environment, which means it ensures the safety and health of a society while sustaining the resources for future generations to come (He, Cai, Deng, & Li, 2016, p. 346). To ensure that future generations can meet their needs, the depletion of natural resources should be avoided (Nair & Little, 2016, p. 171).

The green marketing and consumption debate has been on the rise in academic and policy discussions (Liobikienė & Bernatoniene, 2017, p. 109; Zhao et al., 2014, p. 143). While the existence and promotion of green products encourages green consumption, green consumption can also promote green production.

The needs of the end-users are the most important as they are the motivation behind the supply chain and taking an initiative to preserve the environment (Lin & Niu, 2018, p. 1680). Therefore, there is a need to promote green purchasing to influence industries to produce products that are eco-friendly to reduce environmental impacts. This means that greater awareness of sustainable consumption are expected to affect consumers' purchase decisions and thereby influence industrial production methods to be eco-friendlier and more durable (Paul et al., 2016, p. 124). A positive sustainability cycle can thus be achieved.

The rapid increase of environmental concerns has led to many studies on environmentally sustainable consumption being carried out in different countries on different product groupings such as electricity, textiles, apparel, food, and other grocery products (e.g. Govindan, 2018; Jansson, Nordlund, & Westin, 2017; Kang, Liu, & Kim, 2013). Nevertheless, research on environmentally sustainable consumption of beverages in South Africa could not be found, and yet beverages are a major contributor to the global pollution problem, hence there is a need for this study to understand consumers' views on green consumption related to beverages.

Studies by Liobikienė and Bernatoniene (2017), Paul et al. (2016), M. Sharma and Trivedi (2016) and Wang et al. (2014) have indicated that various factors affect or influence green consumer behaviour, which include demographics (age, income, employment, gender, education), environmental awareness, knowledge of green consumption items, environmental concerns or attitudes towards green consumption and perceived consumer effectiveness. Green symbols not only increase consumers' awareness of green products, they also influence behaviour following the purchase (Barbarossa & Pastore, 2015, p. 204; Hahnel et al., 2015, p. 3; Liu, Segev, & Villar, 2017, p. 451).

The following sections provide a discussion of the theories and models explaining green behaviour as well as existing literature on the factors in these models that affect green consumption behaviour. The chapter ends with the development of a conceptual model for the study.

2.3 Theories and models of green behaviour

Research on green consumption has involved applying various established theories and models.

2.3.1 Theory of planned behaviour

The most commonly used theory and model is the Theory of Planned Behaviour (TPB) (Figure 1) which was intended for the prediction and explanation of human behaviour in a particular setting (Ajzen, 2011, p. 1113).

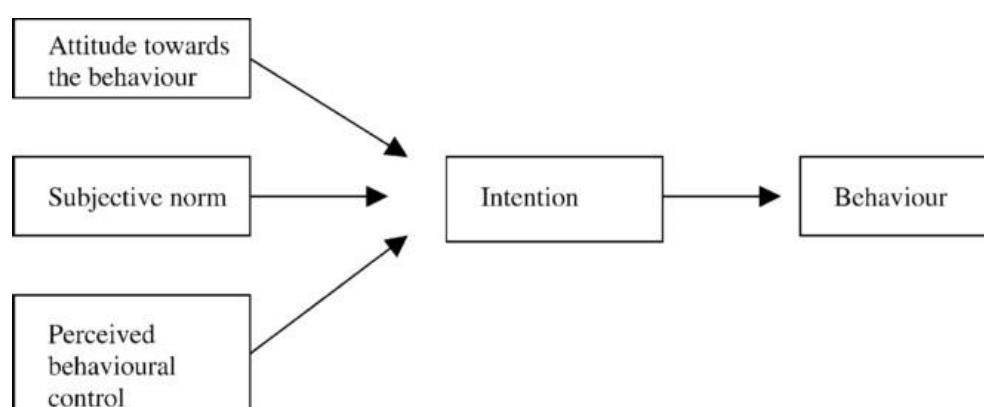


Figure 1: The planned behaviour theoretical framework of (Ajzen (2011, p. 1113))

The theory implies that consumers behave in a 'green' manner if they believe that their actions will save the environment (attitude) (Kim & Han, 2010, p. 999). In addition, they will adopt green behaviour if they believe their relatives or people they trust will find the behaviour valuable (social norm), and if they are equipped enough with the required resources and capabilities to perform the specific behaviour (perceived behaviour) (Kim & Han, 2010, p. 999). Han, Hsu, and Sheu (2010, p. 326) have used the theory to find how consumers behave concerning green hotels. These authors used the theory to predict customers' intentions to choose a green hotel, which allowed them to determine the influence of personal and social aspects on intention.

Yadav and Pathak (2017) applied the TPB in their study that looked at the determinants of consumers' green purchase behaviour in a developing nation. Paul et al. (2016) also used the TPB in their study to predict green product consumption of Indian consumers. TPB has been well used for these green behaviour studies and the current study is a green behaviour study, as factors affecting green behaviour are being looked at. This theory covers the variables that are of interest for this study although the only construct that is looked at is attitudes.

While TPB is well used in research on green behaviour, it does not explicitly address the role played by knowledge in green behaviour. However, the study by Liobikienė et al. (2016) develops a conceptual model based on TPB which includes the knowledge construct.

2.3.2 The model of green behaviour

These authors add two constructs related to knowledge: knowledge of green symbols which they postulate affects confidence in green products and in turn affects green purchasing. Refer to Figure 2.

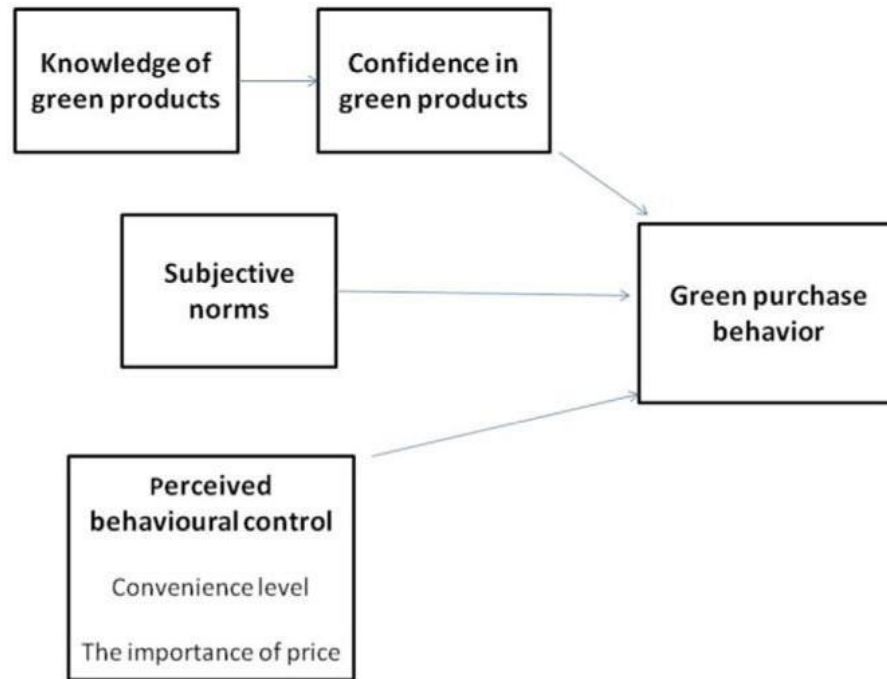


Figure 2: Green behaviour conceptual model (Liobikienė et al. (2016, p. 41).

The four factors in the framework; knowledge of green symbols, confidence in green products, perceived behavioural control and subjective norms are believed to affect green purchasing behaviour.

Knowledge of green products refers to how much a person knows about the environmental impact of the products they buy and use. In contrast, confidence in green products looks at how confident a person is that the environmentally friendly labelled products that they purchase will certainly have less of an environmental impact than other products and that the claims by producers on their environmental performance are accurate (Liobikienė et al., 2016, p. 41).

Liobikienė et al. (2016, p. 43) state that other authors have long-established that confidence and knowledge of green products influences green purchase behaviour positively. Moreover, the integration of both confidence and knowledge of green products substantially regulates purchase behaviour, although less than subjective norms (Liobikienė et al., 2016, p. 42).

According to the TPB, perceived behavioural control designates whether the consumption of a particular product is easy or hard and problematic to the consumer. In place of perceived behavioural control, the authors covered the importance of price and convenience level. The convenience level tells if the green product has a decent amount of value for money and can be consumed easily due to its full availability (Liobikienė et al., 2016, p. 40).

The authors further argue that the availability of green products and their prices determine if the products can be purchased with no complications, which affect people's green behaviour and the significance of price level was found to determine the green purchase behaviour negatively (Liobikienė et al., 2016, p. 42).

While Liobikiene et al.'s (2016) model introduces the impact of knowledge on green purchase behaviour by building confidence in green products, it fails to address the issue of how demographics influence green purchase behaviour. To fully cover the objectives of this study, the framework of Zhao et al. (2014) is also considered as well as other models.

2.3.3. Zhao et al.'s (2014) framework of green behaviour

Zhao et al. (2014, p. 144) developed their framework (Figure 3) in which they fragment green consumer behaviour into three actions of the consumption process, namely purchasing, using, and recycling, which is influenced by the four factors, personal influence, attitudes toward green behaviour and internal and external moderators.

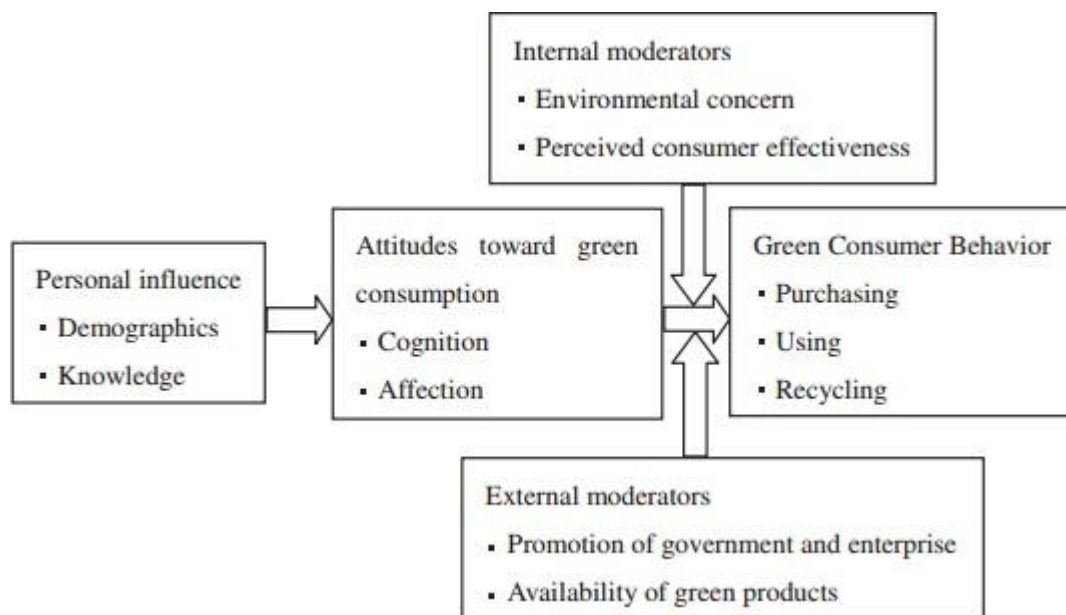


Figure 3: Green behaviour conceptual framework (Zhao et al. (2014, p. 144))

The framework reflects demographics and knowledge variables as aspects that form individual attitudes to environmental-friendly behaviour which in turn affect behaviour. The results of the study by Zhao et al. (2014, p. 147) conducted in Qingdao, China, using the above framework, showed that while people have heard of green consumption, they still lack sufficient knowledge on the basic content of green consumption.

This model not only adds to the inclusion of the knowledge variable in studies on green behaviour but supports that demographic variables should be included in a model investigating green behaviour. It also proposes that knowledge affects behaviour by affecting attitudes.

As stated by Samarasinghe (2015, p. 1461), the process of green consumption behaviour is heavily influenced by attitudes. Attitudes are the most significant aspect in predicting purchase behaviour (Zhao et al., 2014, p. 147). This means consumers' purchasing decisions are generally based on their environmental attitudes, and that those consumers holding positive attitudes toward green products are more likely to purchase green products (Suki, 2016, p. 2895).

Nevertheless, Joshi and Rahman (2015, p. 129) argue that a positive attitude that consumers have towards green products does not always lead to action and does not directly influence behaviour, and that it is therefore of importance to observe and understand the reasons why attitudes of the environment have a weaker influence on green consumer behaviour. Zhao et al. (2014, p. 145) state that the effect of attitude on green consumer behaviour is weakened by numerous internal factors such as environmental concern and perceived consumer effectiveness, external factors such as promotion by government and enterprises, and the availability of green products.

Environmental concern as an internal factor is the consumer's sensitivity to climate change-related issues and being conscious of clean energy sources and conserving the environment (Hartmann & Apaolaza-Ibanez, 2012, p. 1255). Consumers' environmental concerns affect their attitudes toward green consumption, which determines their green behaviour (Gifford & Nilsson, 2014, p. 144; Hartmann & Apaolaza-Ibanez, 2012, p. 1255). It is argued that consumers are more likely to behave in an environmentally friendly way if they are firmly concerned about the environment and society at large (Hartmann & Apaolaza-Ibanez, 2012, p. 1255; Zhao et al., 2014, p. 144). However, Zhao et al. (2014, p. 144) from their review of literature, state that the relationship between concern and behaviour have been found to be low and environmental concern explained only 1.1% of the variance in green purchasing behaviour.

Zhao et al. (2014) include perceived consumer effectiveness as another internal moderator in the framework. Perceived consumer effectiveness is the assessment of the extent that consumers' consumption has a significant impact on the general problem or affects environmental resource issues (Joshi & Rahman, 2015, p. 133; Kang et al., 2013, p. 444). Gleim, Smith, Andrews, and Cronin Jr (2013, p. 57) concluded that there is a positive association between purchase intention and perceived consumer effectiveness. High perceived consumer effectiveness leads to greater levels of green consumption (Zhao et al., 2014, p. 144). In addition, perceived consumer effectiveness affects consumer attitudes which then determine consumer purchase intention, thus consumer effectiveness acts as mediator (Kang et al., 2013, p. 450). Zhao et al. (2014) include the availability of green products as an external moderator. As explained by Jaiswal (2012, p. 21), the availability of green products refers to the availability of marketing distributors or channels of green products, looking at the supply of these products in the market.

If there is a shortage of available green products in the market for consumers to purchase, then that may affect and weaken their attitudes toward green consumption and consequently obstruct green consumer behaviour (Wang et al., 2014, p. 161; Zhao et al., 2014, p. 144). In addition to the external moderators, the authors argue that if governments and companies encourage a sustainable lifestyle, then there is a high possibility for green consumer behaviour to occur (Zhao et al., 2014, p. 144). Biswas and Roy (2015, p. 469) state that governments should assist and boost companies in the promotion of their green products by offering grants which affect the availability of their green products for the consumers. Government involvement ensures fairness and high standards involved which creates public trust and eventually affects attitudes toward green consumption (Lorenzen, 2014, p. 1065).

According to Yang and Zhang (2020, p. 152), the government, as an external moderator, must introduce economic policies and reinforce environmental awareness that will encourage consumers to consume green products. Additionally, the government should lead by committing to green consumption using its public institutions and controlling public opinion to promote a green society, and this will affect a society's attitudes toward green consumption and behaviour (Yang & Zhang, 2020, p. 152).

As the primary focus of this study is to understand the impact of knowledge of eco-labels either directly or indirectly on green behaviours, these variables were not included in the conceptual model of the current study. Zhao et al. (2014, p. 144) include demographics in their model and argue that knowledge and demographics both affect personal preference, which determines the attitude a person will have towards green consumption, which will eventually predict their green purchasing behaviour.

Thus, the above theories, models, and frameworks introduce several factors that may affect green behaviour. The TPB introduced knowledge, the model by Liobikienė et al. (2016) introduced confidence and knowledge variables, while demographics and green consumer behaviour came from Zhao et al. (2014) green behaviour conceptual framework. The following section discusses the variables introduced in the above models and presents research indicating the impact of these factors on green behaviour.

2.4. Factors affecting green behaviour and the development of the conceptual model

As the focus of this study is on green symbols which communicate the ‘greenness’ of a product or its packaging to the consumer (Beatson, Gottlieb, & Fleming, 2020, p. 8), only the variables of knowledge, attitude, confidence and demographics from the above models are included in this study.

The other variables are not believed to be relevant to a study specifically related to eco-labelling. They might be relevant in terms of green behaviour, but they are not relevant for a study that focuses specifically on the impact of knowledge of green symbols. For example, availability of green products might affect green behaviour, but it does not affect perceptions and behaviours in relation to symbols, which is the focus of the study. The following section discusses and justifies the inclusion of these variables and develops the conceptual model for the study.

2.4.1 Demographics and green behaviour and the influence of eco-labels

Zhao et al. (2014, p. 144) introduce demographics as a variable, under the personal influence, which influence consumers’ attitudes toward green consumption, which determines their green consumer behaviour.

Demographics is defined as the consumers' profile or characteristics (Chekima, Wafa, Igau, Chekima, & Sondoh Jr, 2016, p. 3440). According to Pagiaslis and Krontalis (2014, p. 345) undoubtedly, demographic factors should not be overlooked when observing the principles of green behaviour.

Researchers strongly believe that people are more likely to choose a certain behaviour if they believe it will be of benefit because of outcomes they value based on their demographic characteristics (Burton, 2014, p. 19; Rawat & Garga, 2014, p. 58). Sharma and Trivedi (2016, p. 2) identified eight variables that affect what consumers need and want, including demographics, which the authors argue to be equally important to the green marketer. This implies that people may behave differently in terms of green consumption based on their demographic characteristics.

This then suggests that there is a need for research that will look at different demographics and the impact on green behaviour.

Demographics like gender, age, education, employment, and geographic location are reported to influence green consumer behaviour (Sharma & Trivedi, 2016, p. 2; Zhao et al., 2014, p. 147). While Boztepe (2012, p. 12) found that demographic variables are not adequate to determine the green consumer behaviour, Sharma and Trivedi (2016, p. 2) state that numerous studies indicate that the effects of green marketing activities radically vary with disparities in demographic variables.

2.4.1.1 Gender and green behaviour

Past literature shows that women and men hold different views about environmental problems and they behave differently because of what they inherited in terms of genetics, gender-based propensities and the different approaches the two genders take when absorbing and evaluating information about a variety of issues they face, and how it affect them and their communities (Pagiaslis & Krontalis, 2014, p. 345). Patel, Modi, and Paul (2017, p. 194) from their literature argue that males and females live different lifestyles, from the time at home to the time they spend outside their homes, which shape their pro-environmental behaviour.

Suki (2013, p. 52) stated that previous research has shown that women are found to hold more concerns about the environment when compared to men, and eventually translate these concerns to green purchasing. These results are aligned with findings by Chekima, Wafa, et al. (2016, p. 3446) where the relationship between purchase intention and eco-labels was found to be stronger for female consumers than that of male consumers.

Similarly, Boztepe (2012, p. 12) found that women associate themselves more with the environment and exhibit ecological behaviours or environment-friendly behaviour more so than men. However, research by Ali and Ahmad (2016, p. 103) in Pakistan, indicated contrasting results and showed males to be more motivated to purchase environmentally friendly products than females.

The study by Boztepe (2012, p. 14) made a direct comparison between male and female consumers when investigating what affects their green consumption. The results from that comparison showed that green consumption for males is different to that of females as males' green purchasing is affected by several factors such as environmental awareness, green promotion, green product features, and price, whereas females' green purchasing is affected by green promotion only (Boztepe, 2012, p. 17). This author explains that these results imply that marketers should consider gender in their marketing approach. This might mean that gender is expected to influence green behaviour in this study.

The research by Ali and Ahmad (2016, p. 103) in Pakistan further indicated advertisements aimed at women should focus on emphasising green promotion, communicated through eco-labels while for men, eco-labels won't have much of an effect alone on green behaviour since there are other factors such as price and product features affecting their green purchasing (Boztepe, 2012, p. 18). Gleim, Smith, Andrews, and Cronin Jr (2013, p. 15) found that young men are not really interested in green products, hence campaigns on green marketing are necessary to arouse interest in green products and knowledge about green symbols.

The authors further state that retailers enter partnerships with manufacturers who produce products that are less damaging to the environment in groups like electronics and sports goods, where men are more likely to have more knowledge about the product. Contrary to previous research, findings by Wang et al. (2014, p. 163) show that women's environmental concerns are less than that of men, and men are more active in partaking in sustainable consumption behaviour, which is linked to the higher educational level of men in rural areas. In addition, men are more exposed to environmental issues as they normally spend more time outside their homes which might allow them to have more knowledge than females (Patel et al., 2017, p. 194). Research conducted in India by Patel et al. (2017, p. 199) found male consumers to have a relatively higher pro-environmental behaviour as compared to female consumers.

It is thus possible that gender will play a role in South African consumer responses to green symbols and this factor is therefore included in the conceptual framework for the study.

2.4.1.2 Age and green behaviour

In the study conducted by Boztepe (2012, p. 14) results showed that different age groups' green consumption is affected by various factors. Green consumption for consumers in the 16-35 age group is affected by green product features, green promotion and environmental awareness, while that for the 36-45 age group is affected by green promotion and green price. On the other hand, green consumption for ages 46-year olds and above is only affected by promotion. This age group comprises many people who have retired from their work and who spend much of their time watching television (TV) and other media like radio regardless of their gender (Boztepe, 2012, p. 18).

Research conducted by Suki (2013, p. 55) in Malaysia concluded that Generation Y, who were 17 to 26-year-olds in 2013, show more concern about the environment which significantly influences the purchasing decisions of their parents as youngsters. Moreover, the author argues that with the age group 26 years and below, striking messages on the green product should be emphasized, which makes it easy to spot a difference between green products and non-green products through eco-labels (Suki, 2013, p. 60).

This means that eco-labels will encourage and influence consumers to buy green products only if the message regarding green attributes of the products is clearly communicated and able to arouse consumer interest (Suki, 2013, p. 60). Interestingly, Ali and Ahmad (2016, p. 103) found different results from the study they conducted in Pakistan, which indicated that 25 to 30-year olds have a more positive attitude towards purchasing green products when compared to ages 20 to 24. Zhao et al. (2014, p. 147) also found that older people were found to be more likely to exhibit recycling behaviour.

Thus, the current study aims to determine whether age affects consumers' knowledge of green symbols and the effects thereof. Jeong, Jang, Day, and Ha (2014, p. 15) found that there is a negative correlation between age and environmental concern and behaviour.

2.4.1.3 Education and green consumption

Education is a crucial demographic attribute that influences consumer behaviour and is said to improve a person's knowledge on particular issues and awareness of the advantages and disadvantages involved (Burton, 2014, p. 22; Nittala, 2014, p. 141; Zhao et al., 2014, p. 147). Wang et al. (2014, p. 163) argue that education does not only simplify a person's understanding of green matters, but it also promotes a person's awareness of how responsible they are for the environment.

Research by Boztepe (2012, p. 12) found environmental concern to be higher in consumers with higher educational levels and that there is a positive association between education, the information a consumer has, and their attitudes and behaviour. This universal insight is that educated consumers are more socially responsible than uneducated people, which demonstrates education plays a vital role in inspiring change in communities (Nittala, 2014, p. 141).

Zhao et al. (2014, p. 147) findings revealed that education strongly and positively influences green purchasing behaviour because people who possess a higher level of education can understand environmental matters better, leading to more ecological concerns and greater intention to practice green behaviour and buy green products. This implies that implementing proper educational activities by the government or companies who can improve consumers' environmental knowledge, thereby promoting green behaviour. Jeong et al. (2014, p. 15) found that there is a positive relationship between education, environmental concerns and behaviour. It can therefore be expected from this research that education will positively influence green consumption.

Nonetheless, in research undertaken by Zsóka, Szerényi, Széchy, and Kocsis (2013, p. 129) in Hungary, a comparison was made between high school students and university students and no difference was found between these students on the knowledge they had on environmental issues and how they apply this knowledge in their behaviour. Green purchasing for undergraduate consumers, along with those that have already graduated, is affected by green promotion, environmental awareness and green product features (Boztepe, 2012, p. 16).

Overall, education was found to have a moderator effect on green consumption, and the implication is that for high school alumni, undergraduates and graduates, eco-labels are expected to affect their green behaviour more than primary and high school learners (Boztepe, 2012, p. 16).

A study by Chekima, Wafa, et al. (2016, p. 3441) where education was categorized into tertiary qualifications, which included people who have attained or were in the process of attaining their qualifications (Bachelor Degree, Master Degree and PhD), and consumers with a lower education are those that had completed high school but never went to a tertiary institution, and those who were still in high school or younger. The results showed that the relationship between eco-labels and green purchasing intentions in terms of buying green products was stronger for consumers with higher educational levels (tertiary education) than for consumers with lower education levels (Chekima, Wafa, et al., 2016, p. 3446).

Zhao et al. (2014, p. 147) conducted research in China and found that education strongly and positively influences green purchase behaviour because people holding a higher level of education could understand environmental matters better, leading to more environmental concerns and greater intention to practice green behaviour and buy green products. These findings are supported by Chekima and Nittala (2014, p. 141) findings who argue that highly educated people have more knowledge on the effects and risks related to damaging the environment, hence they become strongly motivated to protect it and act accordingly.

Boztepe (2012, p. 12) also found a positive relationship between education, attitudes and behaviour. This implies that the more educated a person is, the more information they have about the environment. Hence, they will hold positive attitudes and behaviour towards green marketing. For example, people with a higher education were found to be more likely to exhibit recycling behaviour (Zhao et al., 2014, p. 147).

However, not all studies found a positive impact from education. Nittala (2014, p. 141) states that many studies have found a positive association between education and green consumer behaviour and environmental concerns, but this correlation seems to be fading. Suki (2013, p. 60), for example, argues that in contrast to age, gender or residence, level of education does not strongly influence consumers' eco-friendly actions. Nittala (2014, p. 143) conducted research in India looking at different demographics and how they affect green buying behaviour of respondents who have completed their tertiary education and are now university teachers.

The results showed that since they are educated, they understand that their actions do affect the environment and that they should consume green products, however, they claim they are too busy to notice these products, therefore being knowledgeable doesn't necessarily lead to green behaviour. Another study conducted in India by Patel et al. (2017, p. 200), revealed consumers who hold the highest educational level; a doctorate, showed more environmentally friendly behaviour than those holding lower educational levels.

Nittala (2014, p. 147) concluded that even a tertiary education level possessed by university teachers did not lead to environmental concern being shown in their willingness to buy green products. The author further reports that regardless of the university teachers' education level (PhD) and high status in the community, they voiced doubt concerning certain products being reusable and recyclable (Nittala, 2014, p. 149).

Ali and Ahmad (2016, p. 88) tested the difference in consumers' green purchasing intentions looking at two education levels, those with an undergraduate degree and those with master's or Ph.Ds. Their results indicated that consumers' green purchasing intentions has an inverse relationship with the level of education. Consumers with a bachelor's degree have a more positive attitude towards green purchasing intentions when compared to those with master's degree/PhD (Ali & Ahmad, 2016, p. 102). The study's findings reveal that this is because consumers with a higher education level believe to know that green products are priced higher while they are of poor quality when compared to non-green products (Ali & Ahmad, 2016, p. 107). These findings show conflicting results regarding the impact of education on environmental concern and green behaviour thus indicating the need for research specific to South Africa.

2.4.1.4 Employment, income and green consumption

Green consumption behaviour is highly dependent on the consumer's financial status, on whether they are employed and have enough income to purchase green products and still be left with money to take care of other needs (Chekima, Chekima, Syed Khalid Wafa, Igau, & Sondoh Jr, 2016, p. 213). As stated by Zhao et al. (2014, p. 147) income is a positive predictor of green purchasing behaviour. Pagiaslis and Krontalis (2014, p. 345) argue that people with low income cannot afford green consumption, while those with high income can afford to practice green consumption.

According to Salazar, Oerlemans, and van Stroe-Biezen (2013, p. 173), families with a higher income have more of a willingness to purchase products with eco-labels. A study by (Chekima, Chekima, et al., 2016, p. 210) attempted to observe the influence of income level along with other variables on green consumption, found different results where income had no effect on green consumption. This means that the amount of income a person has will not determine their level of green consumption.

2.4.1.5 Geographic location and green consumption

There is an assumption that consumers residing in rural and urban areas are exposed to different types of pollution which leads them to hold different attitudes toward the environment; therefore it is generally expected that research will find a relationship between a consumer's geographic location and their environmental concern and green behaviour (Carrete, Castaño, Felix, Centeno, & González, 2012a, p. 473). Carrete et al. (2012a, p. 473) state that the place where a person resides is linked to how concerned they are about pollution and urban residents are more worried about pollution than rural inhabitants.

In a study conducted by Kalantari and Asadi (2010, p. 319) in Iran attempted to explain the environmental attitudes and behaviour of Tehran urban residents, which showed that although they are to some extent, conscious of the environment, that does not lead them to take action because they don't regard the environment as significant as other socioeconomic issues and believe that it is the government's duty to protect the environment more so than it is for individuals' as money to be used in protecting the environment should be provided by the government.

Kalantari and Asadi (2010, p. 316) identified environmental knowledge and information, preparedness to act, and environmental legislation as factors that affect environmental attitudes and behaviour of urban residents. Wang et al. (2014, p. 163) conducted a study on the sustainable consumption behaviours of rural residents in China and results show that that the sustainable consumption behaviour for rural inhabitants is low. The authors argue that contributing factors to these results include lack of environmental education, lack of support from the government and a limited supply of sustainable products for residents' consumption, which weaken residents' ability to participate in green behaviour.

However, residents living in rural areas are concerned and worried about the environment for the future generation (Wang et al., 2014, p. 159).

Liu, Wang, Shishime, and Fujitsuka (2012) conducted a study in China to explore the green purchasing behaviours of urban residents, and the results show that the level of green purchasing behaviour is very low. In comparison to farm residents, Yang and Zhang (2020, p. 153) further argue that external factors can forcibly, but not continuously, influence urban residents' green consumption if they are only doing it for status or avoiding punishment.

A study that was undertaken with Vietnamese urban consumers to understand consumption of residents which could trigger a sustainable lifestyle concluded that although the motivation to live a healthy lifestyle is high, knowledge and awareness of green consumption is mostly low (De Koning, Crul, Wever, & Brezet, 2015, p. 608)

2.4.2. Consumer attitude toward the environment

The TPB includes the construct of attitude towards the behaviour while Zhao et al.'s (2014) framework talks about the attitude towards green behaviour comprising of cognition and affection and includes a separate variable called environmental concern. The public is increasingly concerned about the damage directly affecting the environment and there is an increasing desire by consumers for products which cause less damage to the environment (Paul et al., 2016, p. 124).

Environmental concern contains how a consumer evaluates environmental issues emotionally and their logical beliefs about how the consumption of products affects the environment (Koenig-Lewis, Palmer, Dermody, & Urbye, 2014, p. 94; Newton, Tsarenko, Ferraro, & Sands, 2015, p. 1974). It measures how prepared consumers are to buy their services and products from companies with the status of being environmentally friendly (Newton et al., 2015, p. 1974). Datta (2011, p. 125) found consumers' concerns about the environment affects green consumption in the sense that consumers who are more concerned about the environment and have knowledge about the environmental crisis tend to purchase products with less damage to the environment.

Some studies that have been done, including those by Strauss and Kleine Stüve (2016) and Joshi and Rahman (2015) have also found evidence of the attitude-behaviour gap. A study by Nittala (2014, p. 146) found that consumer concern for the environment is not significantly related to consumers' willingness to buy green products.

Similarly, Joshi and Rahman (2015) reported that 30% of United Kingdom (UK) consumers reported that they were environmentally concerned, but they seldom took their concern further to green purchasing.

This clearly shows a gap between consumers' concerns and their actual actions, referred to as a 'green purchasing gap' (Strauss & Kleine Stüve, 2016, p. 11) or the 'attitude-behaviour gap' (Liobikienė et al., 2016, p. 39), which indicates that a positive attitude that consumers have towards green products or a concern for the environment does not necessarily mean that they will act accordingly by buying green products.

There is a correlation between attitudes and green consumer behaviour (Zhao et al., 2014, p. 147). Therefore, it can be expected that consumers who claim to be concerned about the environment will consume green products and practice green behaviour more than those consumers less concerned about the environment, creating a direct positive relationship. In this study, attitude refers to consumers' attitudes towards green symbols. It is therefore crucial to study what factors can and do influence consumer green purchase behaviour.

2.4.3. Consumer confidence/ trust in green products

The framework by Liobikienė et al. (2016, p. 41) has four factors: knowledge of green symbols, perceived behavioural control, confidence in green products, and subjective norms which are believed to influence green purchasing behaviour. The authors explain confidence in green products as the level of trust by consumers that the products are reliable in terms of its ability to perform and deliver what the products are said to offer (Liobikienė et al., 2016, p. 39). The confidence variable is affected by the knowledge of green symbols, which means if consumers are more knowledgeable about green symbols, then they will have confidence in green products, which affects their green purchasing behaviour (Liobikienė et al., 2016, p. 39).

Issock, Roberts-Lombard, and Mpinganjira (2020, p. 267) argue that consumers will have trust in a green symbol on packaging if they expect and believe that the product's performance will match and be in line with the information on the product's environmental friendliness specified on the label. Furthermore, green behaviour of consumers through initiatives that protect the environment and green consumption depends on how much the consumer trusts environmental claims exhibited on packaging by manufacturers (Issock et al., 2020, p. 267).

Consumers will only make use of the message communicated by eco-labels if they trust them, and if there is lack of trust then consumers are less likely to practice green behaviour (Taufique, Vocino, & Polonsky, 2017, p. 3).

Lam, Lau, and Cheung (2016, p. 50) also argue that consumer trust influences consumers' green purchase intentions, which further determines their repurchase decisions. Results by Chekima, Wafa, et al. (2016, p. 3439) who aimed at determining factors that influence green purchasing intention showed that consumer trust and confidence in the eco-labels led them to trust in green products which eventually increased consumers' purchasing intentions of green products.

However, in most cases, companies make incorrect claims misleading consumers, thus consumers are now hesitant to trust these claims which lower their confidence in green products and eventually decrease their intention to purchase green products (Kaufman, 2014, p. 488). In this study, the focus is not on the actual trust of the product but it's on the trust of the symbol on the product.

2.4.4. Consumer green knowledge

As mentioned above, Liobikienė et al. (2016) introduced the construct of green knowledge of products into their framework and Zhao et al. (2014) include knowledge that personally influences their choices or behaviour. Knowledge is described as the level of information contained in a person's memory which influences the way consumers assess and make sense of alternative preferences (Liobikienė et al., 2016, p. 39). Green knowledge is information a consumer has about the environment which influences and promotes their green behaviour (Chen, Lin, Lin, & Chang, 2015, p. 15678; Zhao et al., 2014, p. 147)

Environmental knowledge has often been assumed to influence green consumer behaviour (Zhao et al., 2014, p. 147). Nittala (2014, p. 148) conducted research in India and found the lack of green knowledge to influence consumers' willingness to buy green products. Similarly, in a study by Ariswibowo and Ghazali (2017, p. 40) that examined environmental knowledge as a factor which predicts green purchase behaviours, it appeared that consumers in most cases avoid conditions where they don't have sufficient knowledge guiding their behaviour. Consumers who are knowledgeable about the environmental crisis tend to involve themselves in green purchase behaviour (Ariswibowo & Ghazali, 2017, p. 40), which suggests that environmental knowledge does predict green purchase behaviour.

As opposed to general green knowledge (green issues, green solutions etc.), this particular study focused on knowledge of green symbols, i.e. did respondents know the name of the symbol, the meaning of the symbol, and did they know what the symbol looked like, which is what was used to determine that knowledge.

2.4.4.1 Content of green knowledge

Green knowledge comprises of human communications about how people and the environment are related (J. Lin, Lobo, & Leckie, 2019, p. 82). It affects the decision-making process, making it easier to make decisions (Zareie & Navimipour, 2016, p. 1), and comprises of the knowledge of green problems, and the types of green symbols that exist.

2.4.4.2 Knowledge of green problems

The results from a study by Lee et al. (2015, p. 1015) reported that over 90% high awareness of climate change was found in developed countries such as North America, Europe, and Japan. In contrast, the greater part of developing countries in Africa and the Middle East and Asia, together with more than 65% of respondents in Egypt, Bangladesh, Nigeria, and India, stated that they know nothing about climate change. From these results, a low percentage of consumers with knowledge about green consumption can be expected in South Africa since it is a developing country which may be a reason for the lack of green behaviour.

It is argued by Kim, Yun, Lee, and Ko (2016, p. 24) that inconsistent results when comparing the relationship between knowledge and green consumer behaviour are due to different forms of knowledge that are sometimes not considered. These authors explain that there is system knowledge, which is about the natural state of the environment; action-related knowledge, which is about available actions to address the problem; and effective knowledge, which is understanding the benefits that a particular action has (Kim et al., 2016, p. 24).

The authors further suggest that one must understand all these types of knowledge to make more informed decisions in terms of the existence of the relationship between knowledge and behaviour. Hence, this suggests that these different types of knowledge should be looked at when conducting research to determine which type of knowledge affects green consumer behaviour and thus where the main communication focus should be. Nevertheless, contrary to the above literature, Noor et al. (2012, p. 60) reports that a relationship between green knowledge and green behaviour does not exist, arguing that having the knowledge does not automatically lead to green behaviour.

Consequently, it is crucial to research how much consumers know about environmental problems such as climate change, as well as green symbols used on packaging to indicate the initiatives taken by marketers to address these issues.

2.4.4.3 Green knowledge and green symbols

Green symbols are used to tell consumers about the specific green activities undertaken by businesses (Ng & Chan, 2020, p. 2). Consumers buy green products if there are green symbols that they understand that support the protection of the environment (Delafröoz, Taleghani, & Nouri, 2014, p. 4; Kumar & Ghodeswar, 2015, p. 341). Thus, a lack of consumer understanding of symbols could mean that consumers do not know and understand the green activities of companies, which could hinder their behaviour with regards to those businesses and their products (Delafröoz et al., 2014, p. 4).

It is stated that although eco-labelling was introduced in India, companies did not choose to use them and the government did not promote the use of them, which lead to teachers not being aware of it and thus were concerned about other factors like brand, price and so forth over environmental attributes (Nittala, 2014, p. 149). This means that eco-labelling can be introduced, but if it is not encouraged by both the companies and the government, then consumers will lack awareness. Consequently, they will not consider eco-labels as a crucial attribute to note when making purchase decisions. Therefore, no matter how educated one is or whether they are employed or not, awareness is vital to promote eco-labels and green purchasing decisions.

As stated by Chekima, Wafa, et al. (2016, p. 3445), awareness of an eco-label and intention to purchase green products has a positive correlation. This means that if a consumer is aware of an eco-label and trusts the label, then there will be a significant impact on consumers' green purchasing intentions. However, Nittala (2014, p. 149) differs from the above statements and argues that eco-labelling is not related to consumer willingness to purchase green products. Research by Schubert, Kandampully, Solnet, and Kralj (2010, p. 297) on consumer perceptions of green restaurants in the US reported that almost all respondents were willing to pay extra for a green restaurant. However, the study found that consumers state that they are unsure of the exact green practices used by restaurants since most of their processes and activities are done at the back-of-house.


D'Souza, Taghian, Lamb, and Peretiatko (2007) found Australian consumers to have little knowledge about labels and the different types of green labels. However, D'Souza et al. (2007) found that Australian consumers' knowledge differed across states. These findings suggest that knowledge of green symbols may vary from one location to another. Therefore, it warrants research in South Africa.

A study by Thøgersen, Haugaard, and Olesen (2010, p. 1802) in Denmark, on consumer responses to eco-labels, concluded that the more well-informed the consumer is about eco-labels, the more confident they are about sustainability, and there is a high possibility that they will notice and understand the new eco-label better. Understanding the eco-label depends on the knowledge of the consumer, the motivation and willingness to learn about the green symbol and related, applicable knowledge, which includes the issue of climate change (Thøgersen et al., 2010, p. 1802).

Moreover, C.-S. Tan, Ooi, and Goh (2017, p. 462) and Liobikienė et al. (2016, p. 41) argue that environmentally concerned consumers who understand how advantageous it is to use green symbols, are more likely to have positive attitudes towards green symbols, hence behave accordingly by buying green products. Consequently, it is expected that consumers with a better understanding of environmental issues and as well as the existence of green symbols have a better understanding of these symbols and a higher possibility for their consumption behaviour to be influenced by these symbols. While similar to the current study, Thøgersen et al. 's (2010) study of the knowledge of eco-labels was limited in the sense that it only included one symbol, the Marine Stewardship Council (MSC) label and ignored all the other green symbols. The current study, therefore, aims to fill that gap by including all the green symbols used on beverage packaging that South African consumers may be exposed to.

Types of Green Symbols

The following are green symbols that are found in South Africa:

-  **Polyethylene terephthalate (PET or PETE1)** indicates the type of resin that was used to make the packaging by placing a Resin Identification Code inside the arrows to assist a consumer to identify the type of plastic in order to maintain its quality and not perform activities that will destroy its quality to enable it to be recycled (Recyclenow, 2015, p. 11).



- **HDPE** **High-density polyethylene (HDPE)** is a type of plastic that was used in making the package. It is a specific density in contrast to low-density polyethylene, which is light with a high tensile strength (HebronGreenCommittee, 2020, p. 2). The symbol helps the consumer keep the package in a good condition suitable for recycling.



- **PP** **Polypropylene (PP)** is a thermoplastic polymer which is hard and lasts long and is recycled from cars, and also helps a consumer recycle the products in an appropriate state and not damage them (HebronGreenCommittee, 2020, p. 5).



- **The Mobius Loop** states that the package is appropriate to be recycled. It is there to let consumers know that it can be reused and not to necessarily mean that it has been recycled. A percentage is often placed in the middle to tell how much recycled material has been used to make the package (Recyclenow, 2015, p. 10).





- **The Tidyman** promotes green behaviour to residents and encourages them not to litter but throw dirt in bins instead (Recyclenow, 2015, p. 15).



- **Recyclable Aluminium (ALU)** communicates with the consumer that the package is aluminium which can be recycled (Recyclenow, 2015, p. 13).



- **The Green Dot** communicates that the company supports green behaviour and has therefore contributed financially to the recycling of packages (Recyclenow, 2015, p. 9). While it does not mean that the packaging has been recycled, will be recycled, or recyclable, but it shows that the company is practicing green behaviour which encourages consumers to do the same.

-  **Glass Symbol** encourages consumers to recycle glass containers in a bottle bank separating colours and use glass recycling collectors (Recyclenow, 2015, p. 12).
-  **FSC Forest Stewardship Council (FSC)** recognizes wood made packages from forests that are well-sustained with certification and under the rules of the FSC (Recyclenow, 2015, p. 20). When a consumer identifies the FSC symbol on the package made from wood material, their confidence to buy will increase, knowing that the products are from forests that are appropriately managed and do not harm the environment (FSC worldwide). Consequently, consumers will recycle the packages knowing that they are protecting forests for future generations. Wood and timber need to be submitted to local council recycling centres since they cannot be put in household recycling bins (Recyclenow, 2015, p. 20).

Spack, Board, Crighton, Kostka, and Ivory (2012, p. 6) argue that visual cues can crucially and effectively predict a consumer response. In taking a different perspective, the authors further reported on the study which looked at a comparison between religious phrases and symbols in advertising, which indicated that based on the principles of symbolic interaction theory, religious symbols could cause people to react emotionally. Green symbols can generate comparable emotional reactions through arousing consumers' attitudes, beliefs, and standards or values they might have about green philosophies or ideologies and practices (Spack et al., 2012, p. 6). Factors affecting green behaviour have been discussed, and the justification of why these variables are included in the conceptual framework.

The elements are demographics, products, concern for the environment, consumer confidence in green symbols, and consumer green knowledge. The types of green symbols found in South Africa have also been discussed. The conceptual model for this study is presented next.

2.5. The conceptual framework for this study

Based on the theories, models, frameworks, and research discussed above, a conceptual framework for this study, specifically looking at green symbols, could be developed. The conceptual framework of this study was developed mainly using the two theoretical frameworks from Liobikiene et al. (2016) and Zhao et al. (2014). None of the conceptual frameworks or models discussed above could entirely address all the objectives of the study without alterations, therefore different constructs from the two models were combined to come up with a single model of this study. Refer to **Figure 4**.

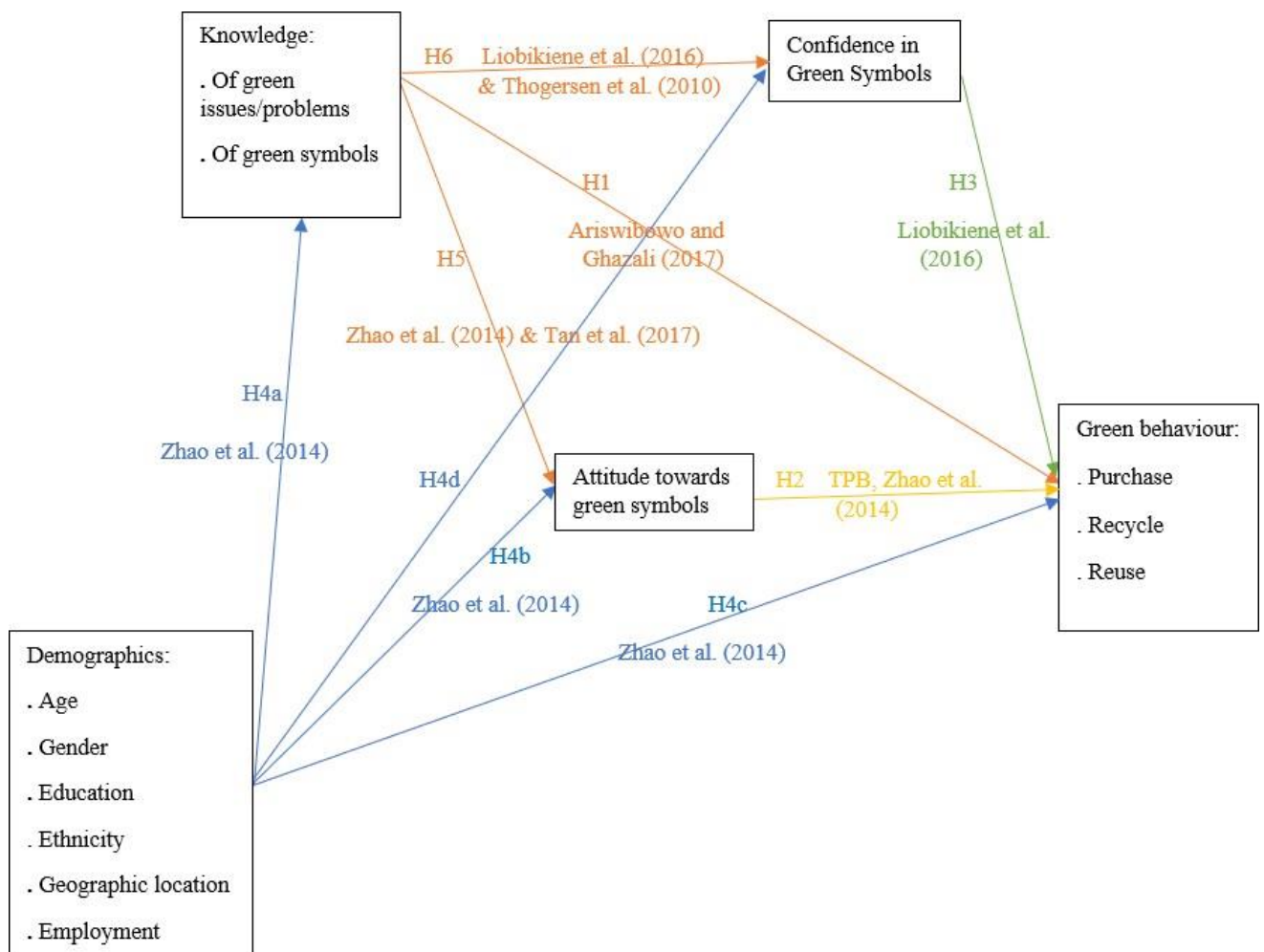


Figure 4: Conceptual framework of this study

The conceptual framework of the study includes demographics as a factor that may affect the knowledge of symbols, attitudes towards green symbols and directly affect green behaviour.

The demographic construct is taken from the conceptual framework by Zhao et al. (2014) where these authors explain how different demographics are more likely to shape the knowledge and consumers attitudes toward green labels and eventually their behaviour about the symbols, which addresses the objectives of the study. The demographics which were used in the current research were age, gender, education, employment, and geographic location.

The conceptual framework of this study also includes the knowledge construct which is extracted from the model of Liobikienė et al. (2016, p. 41) and that by Zhao et al. (2014, p. 144). The authors state that knowledge of green symbols denotes how much consumers know about the impact of their consumed products on the environment and influences their attitudes and, thus, green consumption (Liobikienė et al., 2016, p. 41; Zhao et al., 2014, p. 145).

With regards to the knowledge variable, the study determined the type of knowledge consumers have on the role of green symbols which was expected to lead to certain attitudes towards green symbols, and consequently the kind of green behaviour intentions from a consumer in terms of purchasing, recycling, and reusing. The study also measured consumers' knowledge of environmental problems.

The confidence in the green symbols construct was taken from the model by Liobikienė et al. (2016, p. 41) because the authors state that this attribute impacts positively on green purchase behaviour. Confidence in green symbols was used in this study to test how confident a consumer is that the claims by producers that their products are environmentally friendly are trustworthy and that the products do less environmental damage compared to those that are not labelled as green. This construct is expected to affect consumer green behaviour intentions in terms of whether the consumer is willing to purchase, recycle, or reuse.

The attitudes towards the green symbols construct were extracted from the framework by Zhao et al. (2014) and are expected to be influenced by a person's demographics along with the knowledge which are in turn are expected to influence consumers' green behaviour intention. Behavioural intentions are used as dependant variables and divided by Zhao et al. (2014, p. 144) into three categories, namely; purchasing, reusing, and recycling, which are stages of the consumption process. Intention to perform these green behaviours is expected to be influenced by the independent factors of knowledge, demographics, attitudes towards green symbols, and confidence in green symbols.

2.6. Past research on green symbols

Green symbols have been researched concerning environmental attitudes (Eldesouky, Mesias, & Escribano, 2020; Gutierrez, Chiu, & Seva, 2020); consumer knowledge and its impact on green purchase intention (Sharma & Kushwaha, 2019), (Taufique et al., 2017) and consumer trust (Taufique, Siwar, Talib, Sarah, & Chamhuri, 2014). The study by Gutierrez et al. (2020, p. 16) that examined how consumers who differ in environmental attitudes respond to green symbols in the Philippines, found participants to have a positive attitude towards green symbols, concluding that environmental attitudes play a crucial role in encouraging consumers to notice the green label and the message that is accompanying the green label, which affects their green behaviour.

A study focusing on the effectiveness of eco-labels aimed at establishing a relationship between trust, consumer knowledge and how it impacts green purchase behaviour by Sharma and Kushwaha (2019, p. 2), showed that knowledge of green symbols is positively associated with trust which positively affects consumer green behaviour.

However, Gutierrez et al. (2020, p. 17) found environmental knowledge to have a negative relationship with green symbols and concluded that those consumers with less knowledge and concern are more likely to pay attention to green symbols so that they can understand the information they communicate better. Therefore, there is a need to conduct research to find the impact of knowledge on green behaviour in the South African context because knowledge might be different across countries

Kovačević, Brozović, and Ivanda (2019, p. 17) examined if the green symbols on packaging influence the perception people have about the product and the attractiveness of the packaging and the results indicated that respondents favoured packaging with a green symbol more than that without a green symbol, regardless of differences in packaging design. Another study looked at Spanish consumers' perceptions and attitudes towards food with green symbols and how these green symbols influence their purchase intention. It was found that while consumers have positive attitudes towards eco-labels in food products, there are still other factors they value more that affect their purchasing behaviour, such as food quality, price and brand name. Moreover, consumers seek information more on the labels; hence, the information on labels must be clear and understandable (Eldesouky et al., 2020, p. 3). This tells us that it can be expected that some consumers will have a positive attitude towards green symbols but fail to translate those attitudes into green behaviour.

A paper by Taufique et al. (2014, p. 6) that looked at factors that measure consumers' understanding, and perceptions of eco-labels on products found factors such as trust, consumer awareness, knowledge, visibility of green symbols, information, and design affected green behavioural intentions. A gap still exists on whether these factors affect green behavioural intentions negatively or positively, and how strong the relationship is if there is one, which justifies the current study.

Taufique et al. (2017) explored the influence of consumer knowledge and confidence in symbols and how it influences green consumer behaviour. The results show that knowledge and confidence in green symbols has a positive relationship with attitudes towards the environment and consumer green behaviour (Taufique et al., 2017, p. 511). The conceptual model of this study looks at the relationship of these variables, and it can be expected that there will be positive relationships among them all.

2.7. Conclusion

Review of literature has discussed the differences between green behaviour and green consumption in sustainability. A literature review matrix is provided in **Appendix A** and helps to cross reference the material used in the sections above to understand what is known about the models and variables affecting green behaviour.

The existing literature, theories and models of green behaviour have further been discussed to build to the conceptual framework of this study. The green symbols found in South Africa have been introduced that the study will be focusing on. Past studies that cover the constructs in the conceptual framework of this study have been looked at to better understand what is known and has been found in other parts of the world concerning green symbols and green behaviour. However, the gap still exists on how South African consumers understand green symbols on beverage packaging and what effects it has on their green behaviour. The following chapter discusses the tools and processes that were involved in the collection and analysis of data.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the tools and processes of collecting and analyzing data. The objective of this study was to evaluate consumer understanding of green symbols on beverage packaging in South Africa and to determine the impact on consumer behaviour. The problem is summarised in order to be able to address this research problem, the objectives and hypotheses are provided. Thereafter, the research design & research method are outlined which give a general plan on the action that will be taken to effectively address the research problem. This is followed by the sample design and method chosen to reach out to participants, which leads to the data collection method used and how data was analysed. The data quality is then explained on how reliability and validity was ensured and established for the study. Lastly, a discussion of how ethics were ensured throughout the study is included.

3.2. Statement of the problem

Climate change has become a very important topic in the world which has had negative effects (Peskett et al., 2020, p. 5), with high related costs (Eckstein et al., 2019, p. 5). Ng and Chan (2020, p. 1) argue that people must play their role in changing their behaviour to protect the environment. Businesses are responding to the issue by practicing green marketing to ensure that their actions do not harm the environment (Mukonza & Swarts, 2020, p. 838). They are moving to green packaging and eco-labelling through the placement of green symbols to promote green behaviour (Lihhavtshuk, 2015, p. 35). It is a good idea for marketers to put on green symbols to pass the message to consumers, but if consumers do not understand them then they will be of no benefit (Kong et al., 2014, p. 197; Lin & Niu, 2018, p. 1680). Therefore, there is a need for a study to determine the level of understanding of green symbols and the effect this has on green consumption, especially since little is known in South Africa in relation to green symbols on sustainability packaging.

3.3 Research objectives and hypotheses

The purpose of this research was to evaluate consumer understanding of green symbols on beverage packaging and the implications for green behaviour.

The objectives of the research were to determine:

1. Consumers' green behaviour with regards to beverages with green symbols;

2. Consumers' knowledge of green symbols, and its impact on green behaviour;
3. Consumers' attitude toward green symbols, and its impact on green behaviour;
4. Consumers' confidence in green symbols and its impact on green behaviour
5. The effect of demographic factors on knowledge, attitudes, confidence and behaviour relating to green symbols on beverage packaging.

1. Objective 1 does not require a hypothesis because it is not looking at the relationships.

2. In order to address objective 2: to determine consumers' knowledge of green symbols, and its impact on green behaviour, hypothesis 1 was developed as follows:

H₁: Consumer knowledge of green symbols has a positive impact on green behaviour .

3. In order to address objective 3: To determine consumers' attitudes toward green symbols, and their impact on green behaviour, hypothesis 2 was developed:

H₂: Consumer attitude toward green symbols has a positive impact on green behaviour

4. In order to address objective 4: To determine consumers' confidence in green symbols and its impact on green behaviour, hypothesis 3 was developed:

H₃: The level of confidence consumers have in green symbols positively influences their green behaviour

5. In order to address objective 5: To determine the effect of demographic factors on the knowledge, confidence, attitudes, and behaviour relating to green symbols on beverage packaging, hypothesis 4 was developed:

H_{4a}: Different consumer demographic factors will affect knowledge relating to green symbols on beverage packaging.

H_{4b}: Different consumer demographic factors will affect attitudes relating to green symbols on beverage packaging.

H_{4c}: Different consumer demographic factors will affect behaviour relating to green symbols on beverage packaging.

H_{4d}: Different consumer demographic factors will affect confidence in green symbols on beverage packaging.

H₅: Consumer knowledge of green symbols has a positive impact on their attitude towards green symbols.

H₆: Consumer knowledge of green symbols has a positive impact on their confidence in green symbols.

3.4. Research design & research method

The research philosophy underlying this study is positivism. A positivist philosophy is focused on explaining relationships, identifying causes which affect outcomes and discover and justify the truth that already exists in the social environment rather than creating it while the researcher practices fairness and neutrality and being objective in the research process (Bambale, 2014, p. 865; Rudnick, 2014, p. 245; Scotland, 2012, p. 10). Based on the fact that this study is looking at the effect of certain variables on other variables, a positivist philosophy is appropriate. The research design is a general plan of action that will be taken to effectively address the research problem rationally (Lewis, 2015, p. 473).

A descriptive design study is one that is intended to define the distribution of one or more variables, testing relationships with underlying hypotheses (Aggarwal & Ranganathan, 2019, p. 34). This research used a descriptive design as it aimed to evaluate consumer understanding of green symbols on packaging of beverages and the impact this has on green behaviours. This approach allowed the researcher to discover how different attributes contribute to the overall green consumer behaviour, since little is known about consumers' attitudes, knowledge and behaviour relating to green symbols specifically in South Africa.

A cross-sectional descriptive design includes collecting information on one or more variables of interest and gathering characteristics of a construct in a population at a particular point in time (Aggarwal & Ranganathan, 2019, p. 35).

The study applied a cross-sectional descriptive design since the study took place at a particular point in time and had respondents from a variety of different groupings provide information on their attitudes and behaviours with regards to green symbols.

This study adopted a quantitative approach. The quantitative approach was needed to effectively measure relationships between variables (Saunders, Lewis, & Thornhill, 2009, p. 414). In this case, this approach was used to measure the independent variables (knowledge of green symbols, demographics, attitude towards green symbols and confidence in green symbols), and what effect they have on the dependent variables (green behaviour). This method is suitable as it explained how much understanding consumers have of green symbols as well as the impact the variables, knowledge, attitudes and confidence in green symbols, have on green consumer behaviour such as the purchase of green products, recycling and reusing packaging.

3.5 Sample design

Participants in the study were drawn from a population of adults who are active Facebook users. The use of social media is increasing all around the world with 2.5 billion users on platforms such as Facebook, Instagram, and Twitter and the number increases daily as the people who gain access to the internet increase (Hausmann et al., 2018, p. 2; Meshi, Elizarova, Bender, & Verdejo-Garcia, 2019, p. 169). Social media, when compared to traditional survey-based methods, are cost-effective in discovering information from consumers about their preferences (Di Minin, Tenkanen, & Toivonen, 2015, p. 1). Facebook was reported to be the biggest and most popular platform in South Africa (Nyoni & Velempini, 2018, p. 1), and recent statistics indicate that there are about 16 million Facebook users in South Africa, of which 14 million access the site from mobile devices (Hausmann et al., 2018, p. 2).

The study used a snowball sampling technique. Snowball sampling is a convenience sampling method that is applied when it is hard to reach the targeted population and where a subject refers or recruits other subjects of similar characteristics within their group or associates to take part in the research, and they also refer more subjects until enough data has been gathered (Baltar & Brunet, 2012, p. 60; Naderifar, Goli, & Ghaljaie, 2017, p. 2). This non-random sampling method was chosen because the characteristics of the participants are hard to find, since the research participants should be diverse in terms of age, ethnicity, gender and level of education, and no sampling frame exists for adults in South Africa.

Scott and Vigar-Ellis (2014, p. 644) acknowledged that using a snowball sampling technique impacts reliability and validity of the results and their interpretation and as a result, the generalisation of findings will be affected. In addition, improved recruitment outcomes by using Facebook overcomes some limitations of traditional recruiting methods in terms of user characteristics and high costs of recruiting when compared to recruiting via Facebook (Stokes, Vandyk, Squires, Jacob, & Gifford, 2019, p. 1; Thornton et al., 2016, p. 72)

Facebook has been identified by Kosinski, Matz, Gosling, Popov, and Stillwell (2015, p. 4); Stokes et al. (2019, p. 1) as a powerful research tool used by researchers that is suitable to be used for both online and offline research, that provides tools which can gather big and varied samples assisting in addressing the main challenges affecting individuals and societies. Using social media, particularly Facebook, helps researchers target users based on demographics of users and what these users are interested in (Antoun, Zhang, Conrad, & Schober, 2016, p. 5).

As stated by Thornton et al. (2016, p. 78) and Yadav, Dokania, and Pathak (2016, p. 11) Facebook may be useful for research in a varied range of topics and settings, particularly for populations that are not easy to reach, where it can be used to gain a representative sample with a good geographical scope. Another benefit of using snowball sampling through Facebook is the ability to access a population that is hard to reach, like the old-age group which would be recommended or referred to by their children or younger friends and siblings (Baltar & Brunet, 2012, p. 67). These benefits are applicable to the current study as it intended to get a representative sample that included all geographic areas within South Africa from all the age groups from 18 years and above of all ages, racial groups, employed and unemployed.

There are recent studies related to green marketing that have successfully used snowball sampling through the use of Facebook. Pandey, Jha, and Singh (2020) successfully conducted research in western India using snowball sampling on Facebook to analyse the factors that affect the promotion of green products bought through Facebook. A study by Yadav et al. (2016) based on the influence of green marketing functions in building a corporate image in a developing nation used the snowball sampling method to get respondents through Facebook. Scott and Vigar-Ellis (2014) also effectively completed their research using snowball sampling through the use of Facebook which was aimed at obtaining consumers' understanding, perceptions and behaviours with regards to environmentally friendly packaging in a developing nation.

Nonetheless, there are pitfalls with using Facebook profile data for recruiting survey respondents which include the fact that the user may remove some their self-reported behavioural traces to make the profile more appealing to the society, which provides inaccurate information to the researcher (Kosinski et al., 2015, p. 16). The authors further state that users' behaviour is not only driven by their goals and motivation but is also influenced by Facebook itself through suggestions and exposure to friends' behavioural activities. Moreover, although it is easy to detect a fake account, people can still create a fake profile of Facebook just to participate in research without the researcher noticing (Kosinski et al., 2015, p. 17). These drawbacks however were not believed to be relevant in this research due to the use of snowball or referral sampling where Facebook was used only to distribute the survey and not to gather information on the respondents. Demographic data was gathered directly from the respondents through the survey.

There are studies that have used non-probability sampling focusing on green marketing that had a similar sample size that was deemed satisfactory. Naderi and Van Steenburg (2018) had a sample size of 276 millennial public university students from the United States in their study which aimed to obtain a better understanding of millennials' green behaviour by examining four psychographic variables which may be the reason that millennials get involved in environmental activities. The study by Scott and Vigar-Ellis (2014) on green marketing in a developing state (South Africa) that applied snowball non-probability sampling had a sample size of 323.

Research carried out by Pillai (2013) in the United States of America which examined the impact of consumers' demographic factors on their concern towards the environment and buying of green products has a sample size of 325. Another study that used a questionnaire and a snowball sampling method had a sample size of 403 and the purpose was to understand the factors that affect consumers' decisions of purchasing green products in India (Kumar & Ghodeswar, 2015). Therefore, the planned sample of 384 respondents was deemed acceptable.

For this study, the first 50 seed (initial) respondents or consumers recruited to the sample group were each asked to provide three additional referrals, who would also be asked to each provide two referrals, resulting in 3 iterations of the snowball sampling, with a potential of 1100 respondents.

It was hoped that even with the poor response rate associated with online surveys, the desired sample of 384 would be achieved. Zhao et al. (2014, p. 147) suggest that demographics influence green purchase behaviour. For example, in terms of age, it is reported by these authors that as age increases, green purchase and recycling behaviour becomes better.

Therefore, the primary respondents were chosen to represent different age groups, gender, and race and asked to refer the researcher to Facebook friends with similar demographic profiles. Thus, it was hoped that demographics would be evenly represented. Additional participants were generated through referrals, with members of the sample group being recruited via chain referral. Once the researcher had contact details of one respondent, this primary respondent helped the researcher to recruit other respondents to the study by providing the active Facebook users' contact details.

This study thus adopted an exponential, non-discrimination snowball sampling pattern, which is a non-probability sampling process where a chosen respondent assists by providing at least two other people who possess the same qualities (Muchanga, 2017, p. 81). This was to ensure that at completion of the study all the demographics were fairly represented.

A shortcoming of online surveys as highlighted by Roberts and Allen (2015, p. 102) is the low response rate, so three referral iterations were done to account for this constraint. In addition, the researcher had a close relationship with the first respondents, unlike the respondents from the further iterations which had less of or no relationship with the researcher. Thus, these respondents were requested to make more referrals than those further down the chain.

The questionnaire was sent to the respondent's inbox via Facebook Messenger with an accompanying consent letter explaining what the research was about and requesting the respondent to complete the questionnaire. Once it was completed, the respondent was asked to save it and then return it using Facebook Messenger.

3.6. Data collection

Data was collected using a questionnaire. Before the actual survey was conducted, the questions were tested through a process of pre-testing. The purpose of pre-testing is to check and assess whether questions in the questionnaire are clearly interpreted and understood by respondents in the right context for the intended purpose which also helps to reduce and minimize sampling error, increase formatting quality and the response rate (Hilton, 2017, p. 20).

Seven respondents took part in the pre-test and no changes were needed to be made after the pre-test as respondents found the questionnaire understandable and appropriate in terms of the instructions and did not have questions related to the questionnaire. Therefore, the questionnaire was used as is. It was a self-administered questionnaire. Approximately 1000 questionnaires were distributed with a return rate of 325 responses. To manage non-response, the researcher kept checking the responses to see if all the demographics features were being covered. It took approximately 3 months to collect the data. The main challenge of the data collection process was getting the respondents to provide additional referrals.

In order to assist in understanding which questions belong to which constructs, a question number and the construct name have been added to the questionnaire attached (refer to **appendix B**) but these were not part of the questionnaire that was distributed to respondents. Section A (Q1) of the questionnaire sought to determine the respondents' consumption of different non-alcoholic beverages, being water, energy drinks, juice and soft drinks. Green behaviour (Q2) was then measured using Zhao et al. (2014)'s scale, which allowed the measurement of purchasing, recycling and reusing behaviours.

This scale was used to measure consumers' green behaviour and it was found to be reliable with 0.78 Cronbach's alpha and strong validity (Zhao et al., 2014, p. 145). There were six items in the original scale used by the authors to determine consumer behaviour, but the current research only used three items that were more relevant to the conceptual model as these would be sufficient to determine consumer behaviour with regards to products with green symbols. The scale was revised and tested as it was in the questionnaire that was used for pre-testing and was tested for reliability and validity (see later sections).

Section B (Q3) contained open-ended and Likert scale questions in a table format that addressed the knowledge construct in the conceptual model. The section presented various green symbols and using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5) assessed the respondent's perceived knowledge of the symbol, recollection of seeing the symbol and perceived knowledge of the meaning of the symbol. The respondent's actual knowledge of the name and meaning of the symbol was determined through open-ended questions asking the respondent to name and provide the meaning of each symbol. It was measured by the right responses for the name and meaning.

The symbols included were: The Mobius Loop, The Tidyman, Recyclable aluminium (ALU), The Green Dot, Glass, Polyethylene terephthalate (PET or PETE1), High-density polyethylene (HDPE), Polypropylene (PP), and the Forest Stewardship Council (FSC). Detailed descriptions of these symbols can be found in the literature review.

Attitude towards green symbols was also determined using Zhao et al. (2014)'s 6-item attitude scale in Section C (Q4), statements 1 to 6, which determined how people feel about green symbols. Zhao et al. (2014, p. 145) found the attitude scale to be reliable with a Cronbach alpha coefficient of 0.7 which is considered acceptable reliability (Pallant, 2010, p. 100).

Using Liobikienė et al. (2016) 3-item scale for confidence, questions to address confidence in green symbols were covered in Section C (Q4), statements 7 to 9. The authors do not give the specific Cronbach's alpha coefficient for this scale but note that the scale could be used in the generalized linear regression model (Liobikienė et al., 2016, p. 41). Section D, comprised of questions which identified the respondents' demographics, such as age, gender, education, geographic location, employment, occupation, using nominal or ordinal scales.

3.7. Data analysis

Questionnaires were checked for completeness. Data from the completed questionnaires was coded and captured into the Statistical Package for Social Sciences (SPSS) program (version 25). After the reliability of the measures was checked, descriptive analysis was undertaken to help understand the findings related to the different variables. The descriptive analysis was done on all variables measured e.g. to determine the extent of intention to purchase beverages with green symbols. Univariate analysis allowed the researcher to describe the answers to all questions looking at measures of central tendency and dispersion.

Multiple regression analysis was undertaken to show relationships between variables, and respondents' behaviour regarding green symbols. ANOVA and the independent samples t-test were used to determine the impact of demographics on knowledge, attitudes, and behaviour which can be used to compare means (Sawyer, 2009, p. 1). Refer to **Table 1**, which explains the data needed for each objective and type of analysis that was used to determine the findings.

Table 1: Summary of the objectives

	Objective	Data collected	Analyses
1	Intention to purchase beverages with green symbols	- Green behavioural intention questions	- Univariate analysis
2	Their knowledge of green symbols, and the impact on purchase intention	- Consumer knowledge of green symbols (Types and identification) - + relationship to green behaviour	- Univariate analysis - Multiple regression analysis
3	Their attitude toward green symbols, and its impact on purchase intention	- Attitude towards green symbols - + relationship to green behaviour	- Univariate analysis - Multiple regression analysis
4	Confidence in green symbols	- Confidence in green symbols - + relationship to green behaviour	- Univariate analysis - Multiple regression analysis
5	The effect of demographic factors on knowledge, attitudes and behaviour relating to green symbols in packaging of beverages	- Respondents' demographic data (Gender, age, race, Geographic location, level of education, etc.) - + effect on knowledge, attitudes and behaviour	- ANOVA - Independent samples t-test

3.8. Quality control

Prior to analyses of a questionnaire, the reliability and validity must be established. Trustworthy and applicable research should have high reliability and validity otherwise the results will be biased and not fit for generalization of the population from which they came from (Irshad & Hashmi, 2014, p. 419).

3.8.1. Reliability

In order to evaluate the reliability of the results of the questionnaire and hence the study, Cronbach Alpha was used. The Cronbach's Alpha ranges from 0 to 1. As a general rule of thumb most researchers advise accepting a Cronbach Alpha of 0.7 and above as a good indication of reliability (Irshad & Hashmi, 2014, p. 419; R. Li & Suh, 2015, p. 321). Very low correlations and negative correlations are an indication of items not being well aligned with others or are negatively coded in respect to the other items.

Individual scales were analyzed. In Section B, Knowledge had a Cronbach alpha of 0.91 Confidence 0.88, which shows high internal consistency. The Cronbach alpha for Behaviour 0.66 and Attitude 0.68. The last item of the Attitude scale was removed because it was bringing down the reliability of the scale, and if one looks at the wording ‘I support products with green symbols by buying them’ it can be understood why respondents may have responded differently to this item than the other attitude items. The item does not really deal with an attitude but rather a behaviour. The revised attitude variable was used for all the analyses going forward and the Cronbach alpha of 0.76 was found. The behaviour Cronbach alpha was also marginally below the recommended 0.7 threshold but was retained due to the literature support for, and limited number of items in the scale. Evident from the Cronbach Alpha’s obtained on the individual variable measures, there is high internal consistency in the questionnaire. Table 2 below presents the reliability of the measures in the questionnaire.

Table 2: Construct reliability

Item	Number of Items	Cronbach’s Alpha
Behaviour	3	0.66
Knowledge	27	0.91
Attitude	5	0.76
Confidence	4	0.88

3.8.2. Validity

Validity is a measure to which the scale is able to make a valid measure of its intended purpose. It is a means of seeking clarity on whether the scale really measures what it says it measures (Tavakol & Dennick, 2011, p. 54).

For this study content validity, face validity, criterion validity and construct are addressed. Content validity looks at the extent to which a measure ‘covers’ the construct of interest. It seeks to determine if the questionnaire covers all aspects of the intended purpose (Price, Jhangiani, & Chiang, 2015, p. 93; Saunders et al., 2009, p. 373). The questionnaire was developed and modified from previous similar studies using previously validated scales, which strengthens content validity (Chang & Chen, 2014, p. 1762).

Face validity looks at the actual 'face' value of the items, that is to say, do the items really seem to measure what it aims to measure. In this case questions that ask about green products have been included which is an indication of face validity (Price et al., 2015, p. 93). The measures used in the study are all pre-validated and the conceptual model is developed from existing models of green behaviour and extensive review of literature to support the possible relationships in the context of green symbols.

Criterion validity is measured by looking at items that are supposedly related and checking if they really show reasonable correlation (Price et al., 2015, p. 93), for example in this case knowing a symbol name should have a positive correlation with recalling seeing it.

This study used the measure of Average Variance Extracted (AVE) by Fornell and Larcker (1981) to assess the construct validity of the measures. According to Fornell and Larcker, convergent and discriminant validity can be measured by AVE (Alarcón, Sánchez, & De Olavide, 2015, p. 5). "The AVE measures the amount of variance captured by the construct through its items relative to the amount of variance due to the measurement error" (Chang & Chen, 2014, p. 1762). The level 0.5 is acceptable, while values above 0.7 are considered to be excellent for convergent validity (Alarcón et al., 2015, p. 5). For discriminant validity, the square root of the AVE should be greater than the correlations between constructs (Alarcón et al., 2015, p. 8; Shukla & Purani, 2012, p. 5).

As indicated in Table 3, the AVE values obtained were all greater than 0.5 which shows that there was convergent validity. The square root of the AVE was greater than the correlations, found in **Table 4**, of any two constructs hence indicating discriminant validity. The reliability of the constructs was also high above 0.7 with only one with 0.66. Taken together the results in the table show that the questionnaire had both discriminant and convergent validity as well as reliability.

Table 3: The items' loadings (λ) and the constructs' Cronbach's α coefficients and AVEs

Construct	Items	Lambda	Cronbach's Alpha	AVE	Square root of AVE
A. Behaviour	1	0.642	0.66	0.614	0.784
	2	0.779			
	3	0.773			
B. Knowledge	S1	0.704	0.91	0.601	0.775
	S2	0.772			
	S3	0.846			
	S6	0.663			
	S7	0.738			
	S8	0.667			
	S9	0.647			
C. Attitude	A1	0.818	0.76	0.576	0.759
	A2	0.767			
	A3	0.402			
	A4	0.670			
	A5	0.776			
D. Confidence	C1	0.710	0.88	0.755	0.869
	C2	0.904			
	C3	0.925			

Table 4: Correlations between constructs

Correlations					
		Behaviour	Knowledge	Attitude	Confidence
Behaviour	Pearson Correlation	1	.220**	.181**	.268**
	Sig. (2-tailed)		.000	.001	.000
	N	325	325	325	325
Knowledge	Pearson Correlation	.220**	1	.293**	.168**
	Sig. (2-tailed)	.000		.000	.002
	N	325	325	325	325
Attitude	Pearson Correlation	.181**	.293**	1	.602**
	Sig. (2-tailed)	.001	.000		.000
	N	325	325	325	325
Confidence	Pearson Correlation	.268**	.168**	.602**	1
	Sig. (2-tailed)	.000	.002	.000	
	N	325	325	325	325
**. Correlation is significant at the 0.01 level (2-tailed).					

3.9. Ethical issues

The researcher applied for ethical clearance for conducting this study from the University of KwaZulu-Natal's Research Office. Once the ethical clearance was granted, (**See Appendix C**), the researcher then immediately sent the questionnaires to the sampled respondents along with the informed consent in **Appendix D**. The responses received from the participants were kept confidential and were used for the purposes of this research and any subsequent publication only. Only the researcher had access to the details of the respondents and nowhere in the research findings were details of the respondents mentioned.

CHAPTER 4: FINDINGS

4.1. Introduction

This chapter provides different aspects on the findings of the study. First, the sample profile is described according to the different demographics, age, gender, ethnicity, employment, location and educational level. Thereafter, descriptive statistics for variables are presented. Then multiple regression analyses, the ANOVA and t-tests follow.

4.2. Sample profile

The study was an internet-based survey where questionnaires were sent to 1100 individuals via google docs. Of the 1100 targeted participants only 325 responded giving a response rate of 29.5%. The seemingly low response rate is expected with the general response for an online survey being known to have an average between 20-27%. The demographic information of respondents is presented in Table 5.

Table 5: Demographic profile of respondents

Biographical variable	Category	Frequency	Percentage
Age group	18-20 Years	38	11.7
	21-29 Years	185	56.9
	30-39 Years	52	16.0
	40-49 Years	28	8.6
	50-60 Years	18	5.5
	Older than 60 Years	4	1.2
Gender	Female	200	61.5
	Male	125	38.5
Ethnicity	Asian	3	.9
	Black	202	62.2
	Coloured	37	11.4
	Indian	30	9.2
	White	53	16.3
Employment	Employed	168	51.7
	Unemployed	157	48.3
Education Level	No Matric	17	5.2
	Grade 12	84	25.8
	Bachelor's degree	111	34.2
	Honours degree	62	19.1
	Master's degree	40	12.3
	PhD	11	3.4
Location	Urban	236	72.6
	Rural	89	27.4

4.2.1. Age

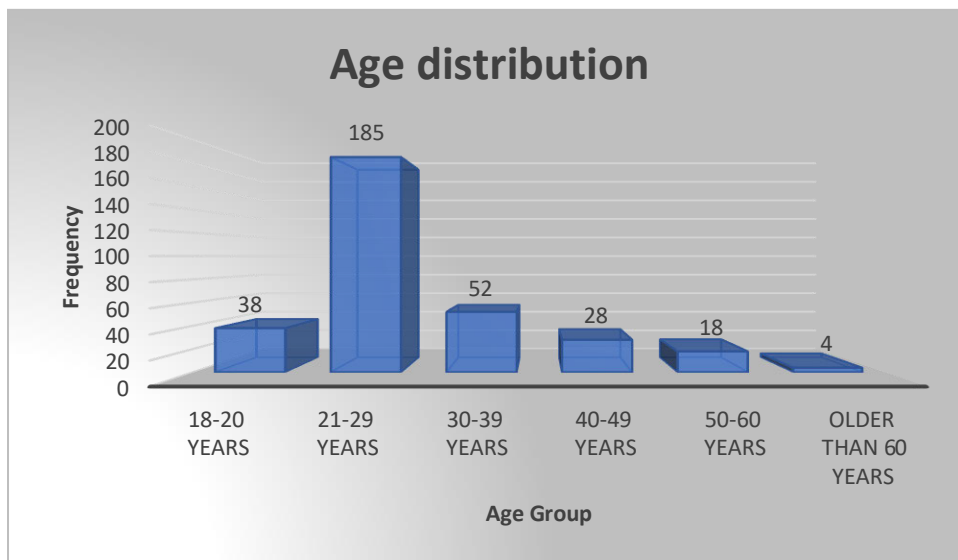


Figure 5: Distribution of age

The results show that the age distribution of respondents had more than half of the respondents 185 (56.9%) within the age range of 21-29 years. This age group may be the most active on the internet and social media and were thus more willing to complete a questionnaire distributed via Facebook. The second age group 30-39 year age group accounted for 52(16%) of the respondents. The overall sample of the study is aligned with StatsSA's (2019) reports on demographics.

4.2.2. Gender

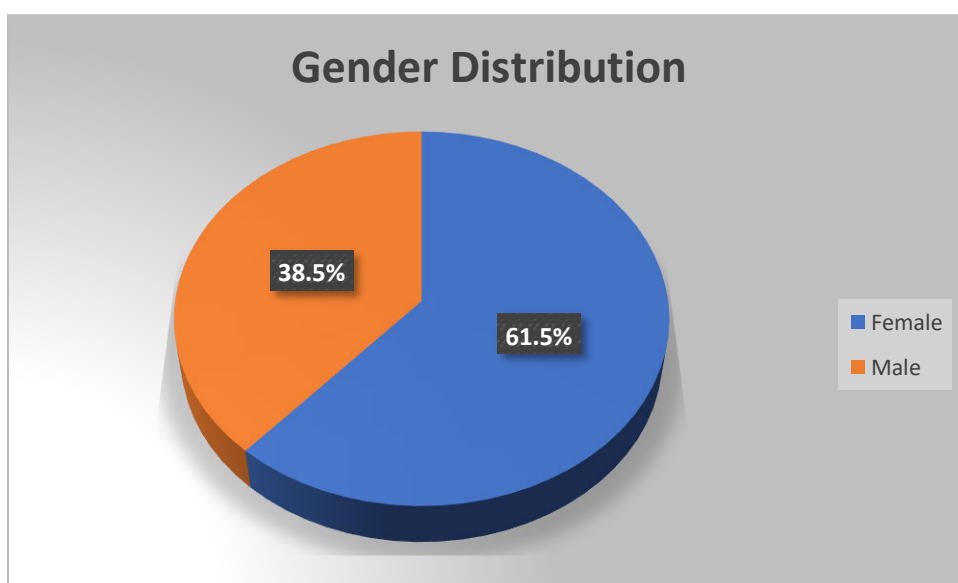


Figure 6: Distribution of gender

The sample was predominantly female with females making up 61.5% and the males making up only 38.5% which is more than half the number of females. Due to the Facebook respondents forwarding the questionnaire to people in their social networks it was difficult to control the sample breakdown and a large enough sample for statistical analysis was deemed more important than a gender equal sample. Future research could address this limitation by having a stratified sample.

4.2.3. Ethnicity

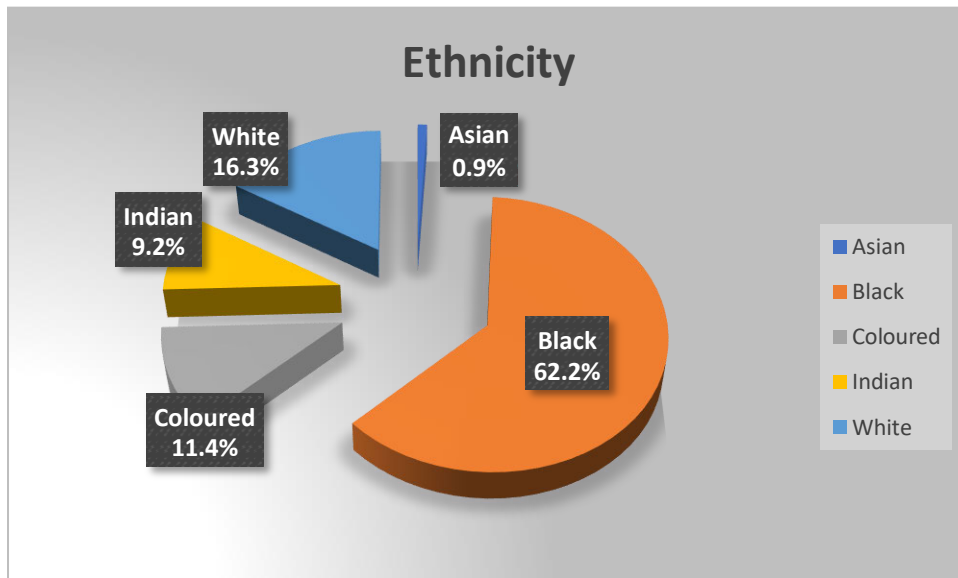


Figure 7: Distribution of ethnicity

The distribution of ethnicity of the respondents shows that 62.2% of respondents are Black African, with the 37.8% made up by a combination of the remaining ethnic groups. Whites followed with 16.3%, Coloureds 11.4%, Indians 9.2%, and Asians with the least 0.9%. The sample is a fair reflection of South Africa's racial profile according to a recent StatsSA (2019, p.8) report that shows that 81% of the entire 58,8 million population are Black Africans, followed by the Coloured population (5,2million) Whites (4,7million), then Indians/Asians (1,5million).

4.2.4. Employment

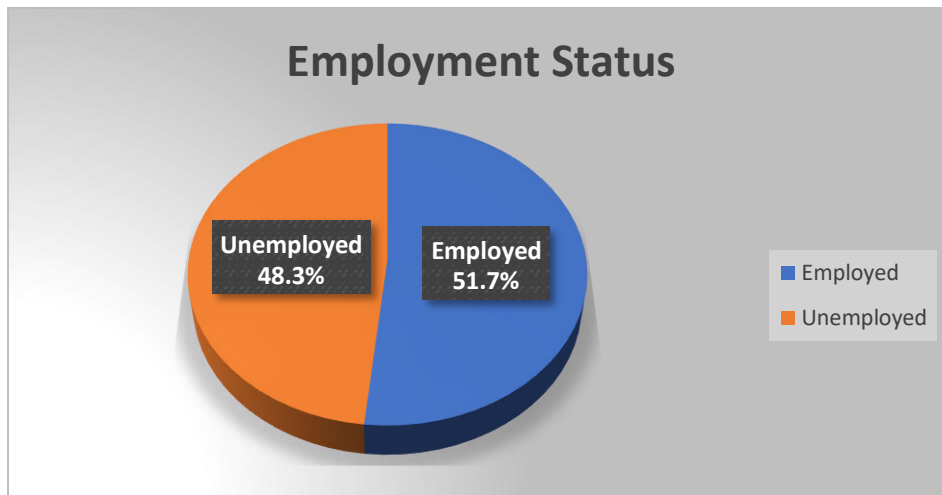


Figure 8: Employment status

Just over a half (51.7%) of the respondents were employed and 48.3% were not employed at the time of the survey. This is most likely due to the fact that many of the respondents' network of contacts on Facebook are students. Students may also have been more willing to complete the questionnaire to assist the researcher.

4.2.5. Education level

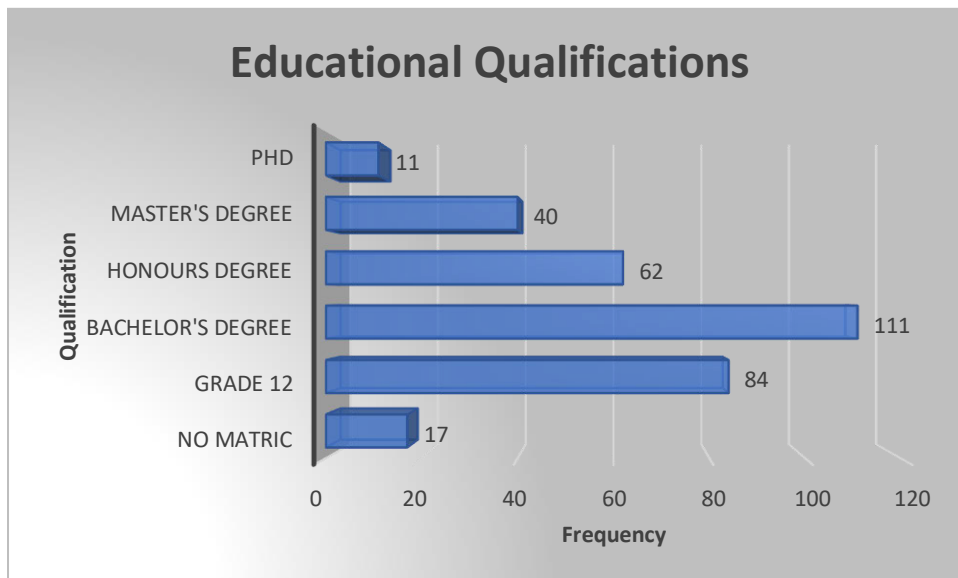


Figure 9: Educational level

Overall, the educational level distribution of respondents shows that the majority 111 (34.2%) of respondents have obtained their bachelor's degree. They are followed by those with grade 12 with 84(25.8%) who do not hold a degree then followed by those with an honours degree with 19.1%, and a master's degree with 12.3%. PhD holders accounted for 11(3.4%) of the sample while those with a matric accounted for 17(5.2%) of the sample. Overall, it means that 94.8% of the respondents had some formally recognized qualification. This will have implications on the study as the results may reflect the knowledge base of the educated rather than the general public.

4.2.6. Location

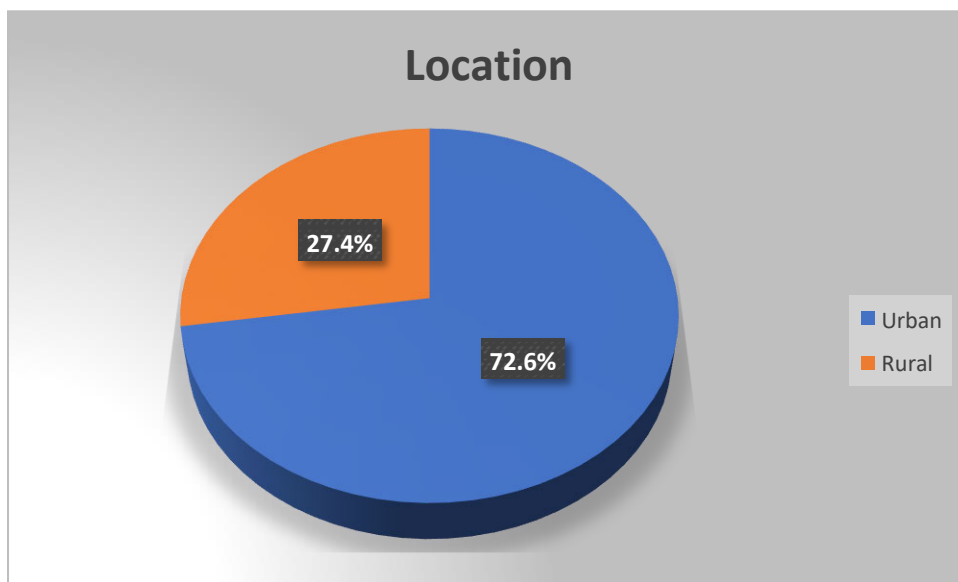


Figure 10: Distribution of location

Almost three quarters of the respondents were from urban areas (72.6%) while 27.4% were from rural areas with 27.4%.

4.3. Descriptive statistics

This section provides findings relating to the constructs measured in this study as per the conceptual model. That is, the consumer green behaviour, knowledge of green symbols, confidence in green symbols and attitudes towards green symbols.

4.3.1. Behaviour

Table 6 below shows how often consumers buy non-alcoholic beverages. Refer to Q1 of the questionnaire, in appendix B.

Table 6: Frequency of buying a particular commodity

SECTION A		Frequency Distribution					Descriptive	
		Never	Very Occasionally	At least once a month	At least once a week	Several times a week	Percentage who buy	Median
1. How often do you buy water?	Count	59	112	65	68	21	81.8%	2
	%	18.2	34.5	20.0	20.9	6.5		
2. How often do you buy energy drinks?	Count	121	110	56	30	8	62.8%	1
	%	37.2	33.8	17.2	9.2	2.5		
3. How often do you buy fruit juice?	Count	35	96	98	76	20	89.2%	3
	%	10.8	29.5	30.2	23.4	6.2		
4. How often do you buy soft drinks?	Count	49	99	79	59	39	84.9%	2
	%	15.1	30.5	24.3	18.2	12		

The percentage who buy column refers to the number of the total sample who buy very occasionally to several times a week, excluding the “never” column. For example, when it comes to water, 81.8% of the sample buy anything from very occasionally to several times a week, and only 18.2% do not buy at all.

The coding was Never=1, Very occasionally=2, At least once a month= 3, At least once a week=4, and Several times a week=5.

Figure 11 below shows the frequency of buying each non-alcoholic beverage in a graph format.

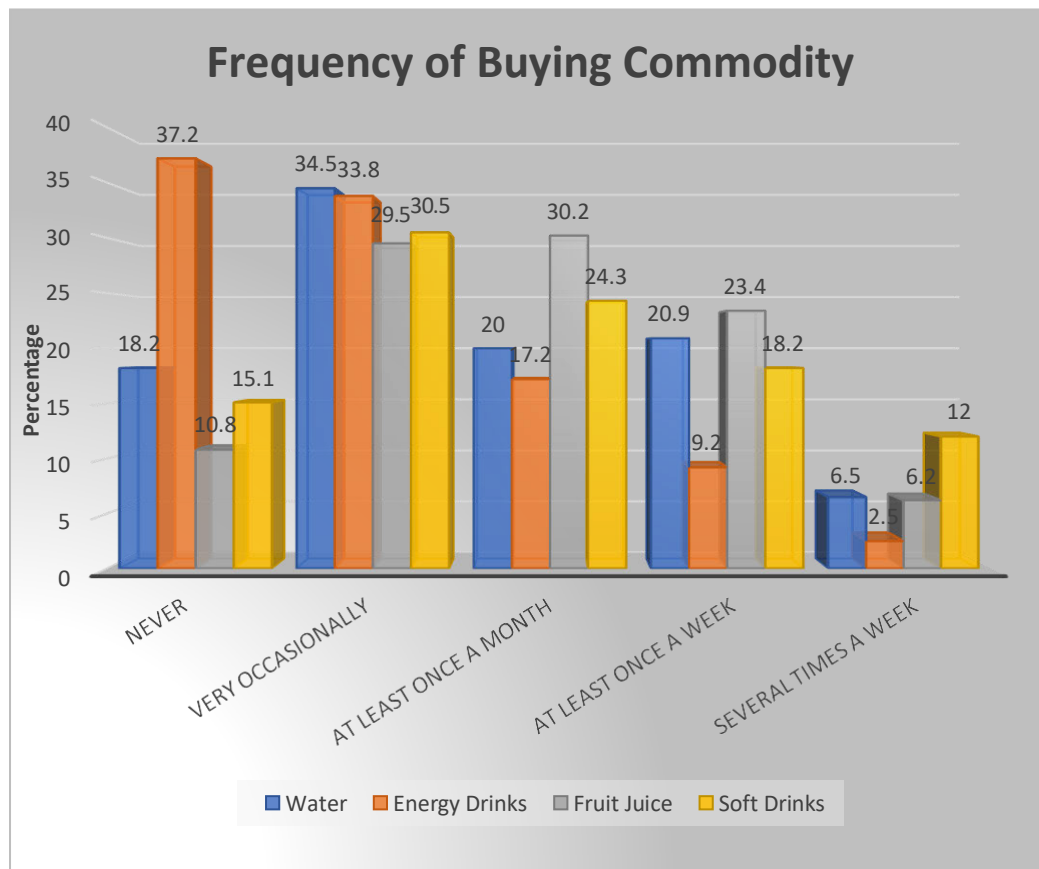


Figure 11: Frequency of buying each commodity

Results show that 81.8% of the respondents buy water at some point. With 15.1% saying they never buy water. The mean response was 2.63 with a standard deviation of 1.19. This means that the majority of the respondents bought water occasionally or at least once a week categories. When it came to energy drinks less people bought them compared to those who buy water. 62.8% said they buy energy drinks at some point in time and 37.2% said they never buy them. A mean of 2.06 and standard deviation of 1.07 indicates that the responses are in general clustered around never buying and at least once a month categories.

Fruit juice was the most bought of all the four. The majority of the respondents said they do buy it (89.2%) with only 10.8% saying they do not buy fruit juice. The modal response was at least once a week with 30.2% of the responses. The mean was 2.85 and a standard deviation of 1.09 showing that the responses ranged from occasional to at least once a week categories.

84.9% of the respondents said they do buy soft drinks and 15.1% said they never do so. The mean response was 2.82 with a standard deviation of 1.24. In general, the bulk of the responses were thus from occasionally buying a soft drink and at least once a week categories.

Table 7 below presents the frequency distribution of consumer environmental behaviour. Refer to Q2 of the questionnaire, in appendix B.

Table 7: Frequency distribution for behaviour

SECTION A		Frequency Distribution					Descriptive		
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Percentage Who buy	Mean	Std Dev
1. I buy products with green symbols	Count	10	48	168	77	22	30.5%	3.16	0.868
	%	3.1	14.8	51.7	23.7	6.8			
2. I buy products that can be re-used	Count	7	40	110	142	26	50.7%	3.43	0.885
	%	2.2	12.3	33.8	43.7	8.0			
3. I buy products that can be recycled	Count	6	34	101	152	32	56.6%	3.52	0.877
	%	1.8	10.5	31.1	46.8	9.8			

It can be seen from the table above that 30.5% of the respondents said they buy products with green symbols. The mean response was 3.16 and the standard deviation was 0.868. The modal response was neutral with over half (51.7%) of the responses. When it came to buying products that can be re-used, half of the respondents (50.7% percentage who buy) were in agreement with the modal response of 'agree' accounting for 43.7% of the responses. The mean was 3.43 and the standard deviation 0.885. This indicated that the majority of responses hovered between neutral and strongly agree.

In terms of buying products that can be recycled, 56.6% (percentage who buy) of the respondents were in agreement. A mean response of 3.52 and a standard deviation of 0.877 were obtained. The modal response was 'agree' with 46.8% of the responses.

The graph of the results is shown in figure 12 below. The bars indicate a taller middle and tapered tails. Showing that most of the responses were for all questions mainly neutral and agree.

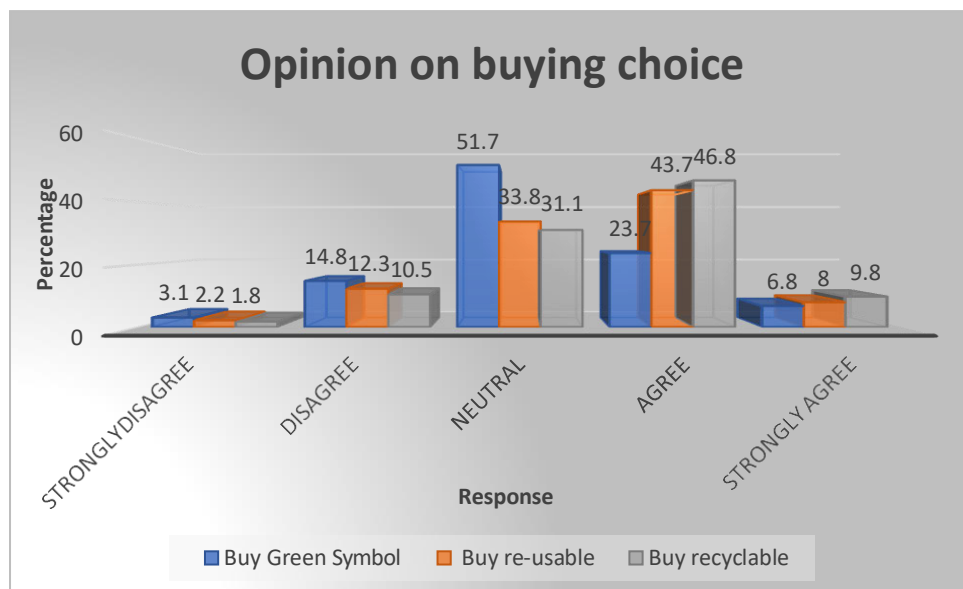


Figure 12: Consumer behaviour

4.3.2. Knowledge

Table 8 shows the level of knowledge of each symbols by the respondents, measured by the three questions: If they know the name of the symbol, its meaning and if they recall seeing the symbol on non-alcoholic beverage packaging. Refer to Q3 of the questionnaire, in Appendix B.

Table 8: Frequency distribution for knowledge

Knowledge		Frequency Distribution							
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/Strongly Agree	Mean	Std Dev
S1 I know the name of the symbol	Count	74	115	65	54	17	21.8	2.46	1.16
	%	22.8	35.4	20.0	16.6	5.2			
S1 I recall symbol	Count	34	59	86	103	43	44.9	3.19	1.19
	%	10.5	18.2	26.5	31.7	13.2			
S1 I know the meaning of the symbol	Count	78	111	65	48	23	21.9	2.47	1.21
	%	24.0	34.2	20.0	14.8	7.1			
S2 I know the name of the symbol	Count	107	154	40	21	3	7.4	1.95	0.89
	%	32.9	47.4	12.3	6.5	0.9			
S2 I recall symbol	Count	61	116	69	64	15	24.3	2.56	1.14
	%	18.8	35.7	21.2	19.7	4.6			
S2 I know the meaning of the symbol	Count	117	136	37	28	7	10.8	1.99	1.01
	%	36.0	41.8	11.4	8.6	2.2			
S3 I know the name of the symbol	Count	109	144	38	26	8	10.5	2.02	1.00
	%	33.5	44.3	11.7	8.0	2.5			
S3 I recall symbol	Count	72	106	71	63	13	23.4	2.50	1.15
	%	22.2	32.6	21.8	19.4	4.0			
S3 I know the meaning of the symbol	Count	111	141	35	31	7	11.7	2.02	1.01
	%	34.2	43.4	10.8	9.5	2.2			
S4 I know the name of the symbol	Count	31	66	52	80	96	54.1	3.44	1.35
	%	9.5	20.3	16.0	24.6	29.5			
S4 I recall symbol	Count	21	40	64	94	106	61.5	3.69	1.23
	%	6.5	12.3	19.7	28.9	32.6			
S4 I know the meaning of the symbol	Count	36	40	47	96	106	62.1	3.60	1.34
	Count	11.1	12.3	14.5	29.5	32.6			
S5 I know the name of the symbol	Count	19	37	62	94	113	63.7	3.75	1.21
	%	5.8	11.4	19.1	28.9	34.8			
S5 I recall symbol	Count	20	26	59	83	137	67.7	3.90	1.21
	%	6.2	8.0	18.2	25.5	42.2			
S5 I know the meaning of the symbol	Count	14	11	58	104	138	74.5	4.05	1.06
	Count	4.3	3.4	17.8	32.0	42.5			
S6 I know the name of the symbol	Count	123	135	32	24	11	10.8	1.97	1.04
	%	37.8	41.5	9.8	7.4	3.4			
S6 I recall symbol	Count	112	122	45	32	14	14.1	2.12	1.12
	%	34.5	37.5	13.8	9.8	4.3			
S6 I know the meaning of the symbol	Count	135	128	26	26	10	11.1	1.92	1.04
	%	41.5	39.4	8.0	8.0	3.1			
S7 I know the name of the symbol	Count	125	131	30	24	15	12	1.99	1.09
	%	38.5	40.3	9.2	7.4	4.6			
S7 I recall symbol	Count	99	129	50	36	11	14.5	2.17	1.09
	%	30.5	39.7	15.4	11.1	3.4			

S7 I know the meaning of the symbol	Count	122	133	35	19	16	10.7	2.00	1.08
	%	37.5	40.9	10.8	5.8	4.9			
S8 I know the name of the symbol	Count	67	97	61	65	35		2.74	1.39
	%	20.6	29.8	18.8	20.0	10.8	30.8		
S8 I recall symbol	Count	57	97	63	76	32		2.78	1.26
	%	17.5	29.8	19.4	23.4	9.8	33.2		
S8 I know the meaning of the symbol	Count	62	84	63	76	40		2.84	1.31
	%	19.1	25.8	19.4	23.4	9.8	35.7		
S9 I know the name of the symbol	Count	97	126	48	32	22	16.6	2.25	1.18
	%	29.8	38.8	14.8	9.8	6.8			
S9 I recall symbol	Count	80	88	55	58	44	40.3	2.69	1.37
	%	24.6	27.1	16.9	17.8	13.5			
S9 I know the meaning of the symbol	Count	101	123	47	31	23	16.6	2.24	1.19
	%	31.1	37.8	14.5	9.5	7.1			

S1=PET, S2=HDPE, S3=PP, S4=Mobius Loop, S5=the Tidyman, S6=ALU Symbol, S7=the Green Dot, S8=Glass Symbol and S9=FSC.

The following section discusses the different green symbols in terms of respondents' knowledge. The images of the symbols can be found in Chapter 2.

4.3.2.1 S1- PET

Only 21.8% of the respondents agreed to some extent (i.e. Strongly Agreed or Agreed), that they knew the name of the symbol. A mean of 2.4 and a standard deviation 1.16 indicates that the responses were between disagree and neutral with the modal response being disagree. Less than half (49%) of the respondents answered the open-ended question. "Recycle/recycled" is the word mentioned the most. "Don't know" combined with "I have no idea" and "not sure" made up 31.4%. 44.9% recalled having seen this symbol on non-alcoholic beverages. Whilst only 21.8% said they knew the name with only 13.6% who actually wrote the correct meaning of the symbol.

This shows that some respondents may know the name of the symbol but lack knowledge of what it is communicating to them. A mean of 3.19 and a standard deviation of 1.19 shows that most of the responses were concentrated between disagree and agree. The modal response was agree with 31.7%. Similar to the name, 21.9% of the respondents knew the meaning accounting for 0.01% difference with those who knew the name. A mean of 2.47 and a standard deviation of 1.1 means that the responses were mainly between disagree and neutral. With the modal response being disagree with 34.2%. Thus, the knowledge of the PET symbol was limited amongst this sample.

4.3.2.2 S2- HDPE

With regards to HDPE, 44% responded to the open-ended question. More than half of the respondents, 53.1%, explicitly noted that they don't know. Only 7.4% were in agreement that they knew the name of the symbol, while those who recalled seeing the symbol accounted for 24.3% of the sample.

Findings show that only 18.2% of the respondents actually knew the correct name but not the meaning because they were giving the name instead of the actual meaning and how they understand the symbol. This shows that while some knew the name, they did not know the meaning. Some of the answers were "high density polystyrene/Polystyrene", "plastic", "type" and "reuse". Therefore, the knowledge of this symbol was very low.

4.3.2.3 S3- PP

Only 10.5% of the respondents reported they knew the name of the symbol. A mean of 2.02 and a standard deviation of 1.00 suggests that responses were mainly between strongly disagree and disagree. The modal response was disagree with 44.3%. 41.8% of the respondents answered the open-ended question. When it came to recall, 23.4% recalled seeing the symbol. The mean for the responses was 2.50 that is directly between disagree and neutral. A standard deviation of 1.15 means that the responses mainly varied around strongly disagree and neutral.

41.8% answered the open-ended question. Just as with the other symbols, those who knew the meaning were nearly the same as those who knew the name but slightly more. 11.7% knew the meaning and a corresponding mean of 2.02 and a standard deviation of 1.01, meaning that responses mainly ranged between strongly disagree and disagree. 55.9% responded "Don't know". Words that appeared the most include "Recycle", "Polypropylene" and "plastic". Therefore, knowledge of PP was found to be very low among the sample.

4.3.2.4 S4- The Mobius Loop

This was the second common symbol. 54.1% of the respondents knew the name of the symbol. The mean response was 3.44 and a standard deviation was 1.35. This means that the responses varied around neutral just toward strongly agree. Strongly agree was the most common response with 29.5% of the responses. 61.5% of the respondents recalled seeing the symbol on non-alcoholic beverages. The mean response was 3.69 and the standard deviation 1.23.

This means responses varied mainly around agree and strongly agree. The modal response was strongly agree with 32.6% of the responses. 72% of the respondents responded to the open-ended question for this symbol. In terms of knowing the name, 62.1% of the respondents stated they knew the meaning. A mean response of 3.60 and a standard deviation of 1.34 indicated that responses were positive between agree and strongly agree. Thus, there was moderate knowledge of the Mobius Loop. “Recycle the product”, “reuse product”, “Mobius loop” are some of the explanations respondents gave.

4.3.2.5 S5- The Tidyman

The Tidyman was the most common symbol. This was not surprising as these symbols are usually displayed in public places and on food packages. 63.7% of the respondents knew the name of the symbol with a corresponding mean of 3.75 and a standard deviation of 1.21. This means that there was strong knowledge of the name that is between agree and strongly agree. The modal response was strongly agree with 34.8%. When it came to the recall of the symbol, 67.75% recalled seeing the symbol on non-alcoholic beverages. A mean of 3.90 and standard deviation of 1.21 indicates that most responses were between agree and strongly agree. The Tidyman had the most responses to the open-ended question with 79.6% of responses. About knowing the meaning, almost exactly three quarters of respondents knew the meaning with 74.5%. A mean of 4.05 and standard deviation of 1.06 shows strong agreement with knowing the meaning. This is not surprising as the symbol shows the actual action of throwing litter into a bin. Some of the responses were “Throw rubbish away”, “Throw into bin”, “Throw litter away” “Dispose in bin”, “Do not litter” and “Recycle”. Therefore, knowledge of the Tidyman symbol was high among the sample.

4.3.2.6 S6- Recyclable Aluminium (ALU)

A mere 10.8% reported they knew the name of the symbol. The mean was 1.97 and the standard deviation was 1.04. This means that most of the responses were centred around disagree moving to strongly disagree and neutral. The most common response was disagree with 41.5% of the responses. For recalling, only 14.1% recalled seeing the symbol on non-alcoholic beverage packaging. The mean was 2.12 and the standard deviation was 1.12. Hence, the responses were concentrated around strongly disagree and neutral.

43% of the respondents answered the open-ended question. The meaning was known by only 11.15% of the respondents and the corresponding mean was 1.92 and a standard deviation of 1.04. This indicates that the majority of people did not know the meaning as responses were mainly between strongly disagree and neutral. “Don’t know” came from 59.2% of the respondents. Thus, there was little knowledge of the ALU symbol.

4.3.2.7 S7- The Green Dot

Those who knew the name of the symbol were 12% and the mean response was 1.99 with a standard deviation of 1.09. The modal response was disagree with 39.7% of responses. 14.5% of the respondents recalled seeing the symbol on non-alcoholic beverages. The corresponding mean of 2.17, the standard deviation of 1.09 and the modal response of disagree at 40.9% showed that the majority did not recall the symbol. With regards to knowing the symbol meaning, 40.9% answered that open-ended question.

10.7% of the respondents knew the meaning. A mean of 2.00 and standard deviation 1.08 shows that most responses were grouped between strongly disagree and neutral. 59.3% of the respondents wrote “Don’t know”. “It is green”, “Recycle”, “Reusable” were some of the responses. It can therefore be concluded that the knowledge of The Green Dot was very low.

4.3.2.8 S8- Glass symbol

This was the least known amongst the items that got loaded onto this factor. With overall agreement responses being less than 50% it was unlike the other 2 which had over 50%. This is not surprising as the factor loading was below 0.5. 30.8% of the respondents knew the name of the symbol and the mean response was 2.74 with a standard deviation was 1.39. This indicated that most respondents had no idea of the name of the symbol as the variation ranged from disagree to neutral. Those who recalled the symbol were 33.2% with the mean response standing at 2.78 and standard deviation of 1.26. The modal responses was ‘disagree’ with 29.8%.

The responses were thus skewed towards disagreement. With regards of knowing the meaning of the symbol, 35.7% agreed that they knew the symbol. While, the mean response was 2.84 and the standard deviation 1.31. This shows that the bulk of the responses were from disagree to agree.

The modal response here was just over a quarter with 25.8%. 54.5% of the respondents answered the open-ended question for this symbol. Thus, the knowledge of the glass symbol was moderate.

4.3.2.9 S9- Forest Stewardship Council (FSC)

There was an equal percentage of 16.6% of those who knew the name and the meaning of the symbol. The means and standard deviations were 2.25, 2.24 and 1.18 and 1.19 respectively. Those who recalled seeing the symbol on non-alcoholic beverages accounted for 40.3% with a mean of 2.69 and standard deviation of 1.37. The modal response was ‘disagree’ with 27.1% of the responses. 46.1% respondents gave an answer to the open-ended questions. 45.3% responded “Don’t know”, while others gave answers such as “From the forest”, “wood”, “recycle”, “paper” and “environmentally friendly”. Knowledge of FSC was very low.

To summarise, the Tidyman was the most known symbol by the respondents, followed by the Mobius Loop and the Glass symbol, which all had moderate to high knowledge. HDEP was the least known symbol by the sample, followed by the Green Dot and PP which reflects respondent’s perceived knowledge.

4.3.3 Attitudes towards green symbols

Table 9 presents the frequency distribution for consumer attitudes towards green symbols. Refer to Q4 of the questionnaire, in Appendix B.

Table 9: Frequency distribution for attitudes

ATTITUDE		Frequency Distribution							
		Strongly Disagr	Disagree	Neutral	Agree	Strongly Agree	% Agree/Strongly	Mean	Std Dev
It is better to buy products with green symbols than those with no green symbols	Count	12	8	101	126	78	62.8	3.77	0.965
	%	3.7	2.5	31.1	38.8	24.0			
Green symbols are a good way to alert consumers of their pollution to the environment	Count	6	14	78	145	82	69.8	3.87	0.904
	%	1.8	4.3	24.0	44.6	25.2			
I need to be persuaded to buy products with green symbols	Count	39	69	96	83	38	37.2	3.04	1.191
	%	12.0	21.2	29.5	25.5	11.7			
It seems very attractive to purchase products with green symbols	Count	11	40	128	99	47	44.9	3.40	0.991
	%	3.4	12.3	39.4	30.5	14.5			
It is very important to actively engage in green behaviour	Count	8	7	65	126	119	75.4	4.05	0.935
	%	2.5	2.2	20.0	38.8	36.6			

The Cronbach Alpha obtained was 0.677 which indicated that there was some internal consistency amongst the items forming our construct. 62.8% of the respondents were of the opinion that it is better to buy products with green symbols than those without.

The mean was 3.77 and a standard deviation 0.965 suggesting that the bulk of the responses were centred between neutral and agree. Agree was the modal response with 38.8% of the responses. When asked if a green symbol was a good way of alerting consumers about pollution to the environment, 69.8% of the respondents were affirmative. The mean response was 3.87 and the standard deviation 0.904, thus implying that the responses were mainly between neutral and strongly agree.

37.2% of the respondents said they needed persuasion to buy products with green symbols. The mean response was 3.04 which is the neutral response. The standard deviation was 1.19, hence the responses were generally clustered around disagree and agree.

The modal response was neutral with 29.5%. 44.9% agreed that it seemed attractive buying products with green symbols. The mean response was 3.40 and the standard deviation 0.991. The responses were thus mainly from neutral and strongly agree.

About three quarters, 75.4 of the respondents were in agreement that it is important to actively engage in green behaviour. The mean was 4.05 and the standard deviation was 0.935. The mean response is ‘agree’ and the standard deviation shows that the majority of responses are between neutral and strongly agree. The responses were therefore positively skewed.

4.3.4 Confidence in green symbols

Table 9 presents the frequency distribution for consumer confidence in green symbols. Refer to Q4 of the questionnaire, in appendix B.

Table 10: Frequency distribution for Confidence

CONFIDENCE		Frequency Distribution						Mean	Std Dev
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	% Agree/Strongly		
I support products with green symbols by buying them	Count	9	38	135	92	51	44.0	3.52	1.91
	%	2.8	11.7	41.5	28.3	15.7			
I am confident that when I buy a product with green symbols, it will cause less damage to the environment than other products	Count	12	27	103	109	74	56.3	3.63	1.04
	%	3.7	8.3	31.7	33.5	22.8			
I trust marketers claims that their products are less damaging to the environment	Count	25	48	113	97	42	42.8	3.26	1.10
	%	7.7	14.8	34.8	29.8	12.9			
I trust that each green symbol is a true representation of its environmental performance	Count	16	40	115	105	49	47.4	3.40	1.04
	%	4.9	12.3	35.4	32.3	15.1			

The Cronbach Alpha for this construct was 0.888 which means that there was a good internal consistency amongst the items. 44% of the respondents were in support of products with green symbols by buying them. The mean response was 3.52 and the standard deviation 1.91. The responses were more spread out from disagree to strongly agree with the modal response being neutral with 41.5%.

When it came to confidence when buying products with green symbols as doing less damage to environment, 56.3% of the respondents were in agreement. The mean of the responses was 3.63 and a standard deviation of 1.038.

The responses were thus concentrated on disagree and agree. 42.8% of the respondents were in agreement that they were confident when they buy green products as they will cause less damage to the environment. The mean response was 3.26 and the standard deviation was 1.10. The responses were mostly between disagree and agree.

Nearly half of the respondents, 47.4% agreed that each green symbol is a true representation of its environmental performance. A mean response of 3.40 and a standard deviation of 1.04 shows that most responses ranged from neutral to agree.

4.4. Regression analysis for the constructs

The relationship between constructs (knowledge, attitude, confidence and behaviour) was measured by the multiple regression analysis, depicted in table 11, 12 and 13.

Table 11: Regression analysis for the constructs

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.341	.209		11.197	.000
	Knowledge	.190	.057	.185	3.339	.001
	Attitude	-.023	.064	-.024	-.353	.724
	Confidence	.178	.047	.251	3.798	.000
a. Dependent Variable: Behaviour						

Results of this regression analysis indicate a small but statistically significant effect ($R^2 = .104$; $F = 12.35$; $p < .001$) thus the predictors of knowledge, attitude and confidence together explain 10.4% of the variation in behaviour.

The regression model shows that knowledge is a statistically significant predictor of behaviour (Std B = 0.185; $p < 0.05$). The results provide support for H_1 that consumer knowledge of green symbols has a positive impact on green behaviour. Attitude is, however, not a statistically significant predictor of behaviour (Std B = -0.024; $p = 0.672$) thus H_2 is not supported.

Confidence has a statistically significant effect on behaviour (Std B = 0.251; $p < 0.001$) thus providing support for H_3 that the level of confidence consumers have in green symbols positively influences their green behaviour.

To further investigate the effects of knowledge, the following two regression analyses were conducted.

Table 12: The relationship between knowledge and attitude

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	
1	(Constant)	2.781	.158		17.582
	KNOWLEDGE Variable	.320	.058	.293	5.506
a. Dependent Variable: ATTITUDE Variable					

Results of this regression model indicate a small but statistically significant effect ($R^2 = .086$; $F = 30.314$; $p < .001$) thus knowledge explains 8.6% of the variation in attitude thus providing support for H₅ that consumer knowledge of green symbols has a positive impact on their attitude towards green symbols.

Table 13: The relationship between knowledge and confidence

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	
1	(Constant)	2.783	.217		12.800
	KNOWLEDGE Variable	.245	.080	.168	3.068
a. Dependent Variable: CONFIDENCE Variable					

Results of this regression model indicate a small but statistically significant effect ($R^2 = .028$; $F = 16.39$; $p < .05$) thus knowledge explains 2.8% of the variation in confidence thus providing support for H₆ that consumer knowledge of green symbols has a positive impact on their confidence in green symbols.

4.5. ANOVAs and T-tests for demographic factors

This section provides the analysis of how each demographic variable (age, gender, ethnicity, employment and education) affects behaviour, knowledge, attitudes, and confidence of consumers relating to green symbols on beverage packaging.

4.5.1. ANOVAs for demographic factors

The following tables are ANOVAs used to analyse the differences among group means in a sample (Sawyer, 2009, p. 1).

Table 14: ANOVA for age

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Behaviour	Between Groups	4.351	5	.870	1.936	.088
	Within Groups	143.377	319	.449		
	Total	147.729	324			
Knowledge	Between Groups	2.779	5	.556	1.301	.263
	Within Groups	136.260	319	.427		
	Total	139.039	324			
Attitude	Between Groups	2.644	5	.529	1.035	.397
	Within Groups	162.979	319	.511		
	Total	165.623	324			
Confidence	Between Groups	3.142	5	.628	.688	.633
	Within Groups	291.439	319	.914		
	Total	294.581	324			

The p-values obtained for the Anovas were all greater than 0.05 hence do not reject the Null hypothesis and conclude that there were no significant differences in attitude, behaviour, confidence or knowledge across the different age groups. Hence, there is no need for post hoc tests.

Table 155: ANOVA for ethnicity

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Behaviour	Between Groups	6.224	4	1.556	3.519	.008
	Within Groups	141.504	320	.442		
	Total	147.729	324			
Knowledge	Between Groups	1.201	4	.300	.697	.594
	Within Groups	137.837	320	.431		
	Total	139.039	324			
Attitude	Between Groups	4.453	4	1.113	2.210	.068
	Within Groups	161.170	320	.504		
	Total	165.623	324			
Confidence	Between Groups	6.879	4	1.720	1.913	.108
	Within Groups	287.702	320	.899		
	Total	294.581	324			

There were statistically significant differences at the $p < 0.05$ level in behaviours $F(4, 320) = 3.519$, $p = 0.008$. As a post hoc test for differences, the Least Squared Difference (LSD) method was used. Refer to **Table 16**.

Post-hoc comparisons using the LSD test indicated that the mean behaviour score for Indian respondents ($M = 3.74$, $SD = 0.62$) was significantly higher than that of both Black respondents ($M = 3$, $SD = 0.88$) and White respondents ($M = 3.23$, $SD = 0.74$). This indicates that Indian respondents are more likely to buy, recycle, reuse products with green symbols than either Black respondents or White respondents.

Table 16: Multiple Comparisons for ethnicity using LSD

Multiple Comparisons using LSD							
Dependent Variable	Ethnicity i	Ethnicity j	Mean Difference (i-j)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Behaviour	Asian	Black	-.33993399	.38676787	.380	-1.1008630	.4209950
		Coloured	-.47747748	.39918873	.233	-1.2628434	.3078884
		Indian	-.74444444	.40266649	.065	-1.5366525	.0477636
		White	-.23270440	.39464374	.556	-1.0091285	.5437197
	Black	Coloured	-.13754348	.11891378	.248	-.3714950	.0964081
		Indian	-.40451045*	.13011203	.002	-.6604935	-.1485274
		White	.10722959	.10262809	.297	-.0946814	.3091406
	Coloured	Indian	-.26696697	.16337503	.103	-.5883918	.0544579
		White	.24477307	.14245977	.087	-.0355030	.5250491
	Indian	White	.51174004*	.15193235	.001	.2128276	.8106525

*. The mean difference is significant at the 0.05 level.

Table 17: ANOVA for Employment

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Behaviour	Between Groups	.831	1	.831	1.828	.177
	Within Groups	146.897	323	.455		
	Total	147.729	324			
Knowledge	Between Groups	.001	1	.001	.002	.966
	Within Groups	139.038	323	.430		
	Total	139.039	324			
Attitude	Between Groups	.003	1	.003	.005	.943
	Within Groups	165.620	323	.513		
	Total	165.623	324			
Confidence	Between Groups	.228	1	.228	.250	.618
	Within Groups	294.354	323	.911		
	Total	294.581	324			

There were no statistically significant differences amongst the employment group means on all the constructs. Hence, the null hypothesis was not rejected, and it could be concluded that employment status does not affect knowledge, attitudes, confidence or behaviour relating to green symbols on beverage packaging.

Table 18: ANOVA for location

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Behaviour	Between Groups	.036	1	.036	.079	.778
	Within Groups	147.692	323	.457		
	Total	147.729	324			
Knowledge	Between Groups	1.375	1	1.375	3.225	.073
	Within Groups	137.664	323	.426		
	Total	139.039	324			
Attitude	Between Groups	.130	1	.130	.254	.615
	Within Groups	165.493	323	.512		
	Total	165.623	324			
Confidence	Between Groups	1.759	1	1.759	1.940	.165
	Within Groups	292.822	323	.907		
	Total	294.581	324			

There were no statistically significant differences in the means of the location groups across all the constructs. Hence, the null hypothesis could not be rejected, and it could be concluded that the consumer's geographic location does not affect knowledge, attitudes, confidence or behaviour relating to green symbols on beverage packaging.

Table 19: ANOVA for education

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Behaviour	Between Groups	5.128	5	1.026	2.294	.045
	Within Groups	142.601	319	.447		
	Total	147.729	324			
Knowledge	Between Groups	3.327	5	.665	1.564	.170
	Within Groups	135.712	319	.425		
	Total	139.039	324			
Attitude	Between Groups	1.868	5	.374	.728	.603
	Within Groups	163.755	319	.513		
	Total	165.623	324			
Confidence	Between Groups	4.526	5	.905	.996	.420
	Within Groups	290.055	319	.909		
	Total	294.581	324			

There were statistically significant differences at the $p < 0.05$ level in behaviour $F(5, 319) = 0.250$, $p = 0.045$. As is evident in Table 20, Post-hoc comparisons using the LSD test indicated that the mean behaviour score for respondents with a Bachelor's degree ($M = 3.47$, $SD = 0.64$) was significantly higher than those with no Matric ($M = 3.02$, $SD = 0.67$) and those with an Honours degree ($M = 3.26$, $SD = 0.76$). Respondents with Grade 12 ($M = 3.45$, $SD = 0.59$) also had significantly higher behavioural scores than that of respondents with no Matric ($M = 3.02$, $SD = 0.67$). Therefore, respondents with a Bachelor's degree were more likely to behave in a green manner, buy buying products with green symbols, reusing and recycling them, than those respondents with no Matric but also those with an Honours. This is an interesting finding which would need further research to be able to explain. Respondents who completed their schooling i.e. possessed a Matric or Grade 12 were also significantly more likely to behave in a green manner than those who hadn't completed their schooling.

Table 20: Multiple Comparisons for education using LSD

Multiple Comparisons using LSD						
Behaviour		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Educational Level	Educational Level				Lower Bound	Upper Bound
No matric	Grade 12	-.42880486*	.17781247	.016	-.7786382	-.0789715
	Bachelor's degree	-.45186363*	.17413444	.010	-.7944607	-.1092666
	Honours degree	-.23845667	.18304542	.194	-.5985854	.1216721
	Master's degree	-.30539216	.19357471	.116	-.6862365	.0754522
	PhD	-.13190731	.25871633	.611	-.6409132	.3770986
Grade 12	Bachelor's degree	-.02305877	.09669006	.812	-.2132895	.1671720
	Honours degree	.19034818	.11194548	.090	-.0298965	.4105929
	Master's degree	.12341270	.12844194	.337	-.1292876	.3761130
	PhD	.29689755	.21438355	.167	-.1248867	.7186818
Bachelor's	Honours degree	.21340696*	.10600622	.045	.0048473	.4219666
	Master's degree	.14647147	.12329987	.236	-.0961122	.3890551
	PhD	.31995632	.21134293	.131	-.0958458	.7357584
Honours degree	Master's degree	-.06693548	.13559382	.622	-.3337066	.1998356
	PhD	.10654936	.21874336	.627	-.3238125	.5369113
Master's	PhD	.17348485	.22762732	.447	-.2743556	.6213253

4.5.2. T-tests for gender

The following tables show t-tests which show whether gender has an effect on behaviour, knowledge, attitude and confidence with regards to green symbols.

Table 21: T-test between gender and behaviour

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Behaviour	Equal variances assumed	1.201	.274	.372	323	.710	.02867	.07709	-.12300	.18033
	Equal variances not assumed			.379	280.155	.705	.02867	.07558	-.12011	.17745

An independent-samples t-test was conducted to compare the behaviour scores for males and females. There was no significant difference in scores for males ($M = 3.35$; $SD = 0.64$) and females ($M = 3.38$; $SD = 0.69$).

Table 22: T-test between gender and knowledge

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Knowledge	Equal variances assumed	1.224	.269	-1.080	323	.281	-.08066	.07467	-.22757	.066234
	Equal variances not assumed			-1.091	272.170	.276	-.08066	.07390	-.22616	.064835

Similarly, an independent-samples t-test was conducted to compare the knowledge scores for males and females. There was no significant difference in scores for males ($M= 2.69$; $SD= 0.64$) and females ($M= 2.61$; $SD= 0.67$) found.

Table 23: T-test between gender and attitude

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Attitude	Equal variances assumed	.253	.615	-.091	323	.928	-.00740	.08164	-.16802	.15322
	Equal variances not assumed			-.092	273.303	.927	-.00740	.08070	-.16627	.15147

An independent-samples t-test was conducted to compare the attitude scores for males and females. There was no significant difference in scores for males ($M= 3.63$; $SD= 0.69$) and females ($M= 3.62$; $SD= 0.73$).

Table 24: T-test between gender and confidence

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Confidence	Equal variances assumed	.562	.454	.021	323	.983	.00233	.10888	-.21188	.21654
	Equal variances not assumed			.021	252.108	.983	.00233	.11032	-.21493	.21959

Finally, an independent-samples t-test was conducted to compare the confidence scores for males and females. There was no significant difference in scores for males ($M = 3.43$; $SD = 0.99$) and females ($M = 3.43$; $SD = 0.93$).

Thus, only ethnicity and education had an effect with both affecting only behaviour. Knowledge, attitudes and confidence were not affected by any demographic.

4.6. Conclusion

To conclude, this is what was found, as shown in Table 25 below.

Table 25: Summary of results

Hypothesis	Results (Accepted/ Not accepted)
H ₁ : Consumer knowledge of green symbols has a positive impact on green behaviour	Accepted
H ₂ : Consumer attitudes toward green symbols has a positive impact on green behaviour	Not accepted
H ₃ : The level of confidence consumers have in green symbols positively influences their green behaviour	Accepted
H _{4a} : Different consumer demographic factors will affect knowledge relating to green symbols on beverage packaging	Not Accepted
H _{4b} : Different consumer demographic factors will affect attitudes relating to green symbols on beverage packaging	Not Accepted
H _{4c} : Different consumer demographic factors will affect behaviour relating to green symbols on beverage packaging	Partially Accepted
H _{4d} : Different consumer demographic factors will affect confidence in green symbols on beverage packaging.	Not Accepted
H ₅ : Consumer knowledge of green symbols has a positive impact on their attitude towards green symbols	Accepted
H ₆ : Consumer knowledge of green symbols has a positive impact on their confidence in green symbols	Accepted

The sample profile has been described according to different demographics, age, gender, ethnicity, employment, location and educational level. Thereafter, descriptive statistics for variables were presented. The relationship between constructs tested using the multiple regression analysis showed that knowledge, confidence and demographics does have an effect on green behaviour. The ANOVAs and t-tests were then presented and showed that only education and ethnicity as demographics effect green behaviour. The following chapter brings a discussion of the findings in relation to each objective, then conclusions and recommendations for marketers, government and future research.

CHAPTER 5: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter gives a discussion of the findings in relation to each objective. The conclusion is made for each objective and the overall study. This is to understand how the findings link to the overall aim of the study and therefore, give recommendations for marketers, government and future studies in order to address further gaps that were found by the current study.

5.2. Discussion and conclusions

5.2.1 Objective 1: consumers' green behaviour related to beverages with green symbols

The most purchased beverage of all the four non-alcoholic beverages was fruit juice, with 89.2% of respondents who buy fruit juice at some point. Soft drinks came second with 84.9% respondents, followed by water with 81.8% and energy drinks were the least purchased beverage with 62.8%. All products were, however, frequently purchased products.

56.6% of the respondents reported they buy products that can be recycled. Half of the respondents said they buy products that can be re-used. Only 30.5% of respondents reported they buy products with green symbols. Essentially, respondents reported that they buy products that can be recycled and re-used but they don't specifically buy products with green symbols. These results show that the majority of the consumers may have not seen green symbols on packaging, because products that can be recycled and re-used usually have green symbols which communicate that message. In other words, they don't look for a symbol when buying something that they will re-use or recycle. Moreover, consumers' green behaviour related to beverages with green symbols are low. These results support those by Kovačević et al. (2019, p. 17) and Eldesouky et al. (2020, p. 3) where they found that consumers look at labels for information, but not specifically green symbols.

To conclude, while non-alcoholic beverages are frequently bought products only about a third of respondents look for the green symbols when making this purchase. Although about half of the respondents buy non-alcoholic beverage products that can be reused or recycled, it can be concluded that behaviour to buy products with green symbols is low.

5.2.2 Objective 2: consumers' knowledge of green symbols, and its impact on green behaviour

The Tidyman was the most known symbol with 63.7% of respondents agreeing to know the name of the symbol. The Mobius Loop was the second most known symbol by 54.1% of respondents. In the third place was the Glass Symbol with 30.8%. HDPE was the least known symbol by respondents, with only 7.4% of respondents knowing the name of the symbol. The symbol that respondents recalled seeing the most was The Tidyman with 67.75% of respondents agreeing that they recall the symbol, followed by the Mobius Loop with 61.5%. Although only 21.8% respondents said they knew the name of the PET symbol, 44.9% recalled seeing the symbol on beverage packaging, making it the third most recalled symbol. Moreover, only 13.6% actually wrote the correct meaning of the symbol.

These results imply that a consumer can see the symbol but lack knowledge of what the name of the symbol is and what the symbol means, which is the message it is trying to communicate. These findings support those by Nittala (2014, p. 149) who reported that it is all very well to introduce green symbols, but if consumers lack awareness and knowledge they will not act accordingly and behave in a green manner. ALU was the symbol that respondents recalled the least. This could be because the least purchased beverage was energy drinks as per this study's findings and most of them are in cans (aluminium), which could explain why respondents don't recall the symbol because it is only found on cans.

The most known meaning of the symbol was that of the Tidyman, followed by Mobius Loop, and the Glass Symbol. HDPE was the least known meaning of its symbol. The findings revealed that there is very little knowledge of green symbols. However, the 3 symbols, PET (S1), The Mobius Loop (S4) and Glass Symbol (S8) were the most understood symbols by respondents. This could be explained as that these symbols are self-explanatory - by just looking at them you can tell what they are communicating. The study found that consumer knowledge of green symbols has a weak positive, but significant, impact on green behaviour. These findings support those found by Taufique et al. (2017, p. 511) and N. K. Sharma and Kushwaha (2019, p. 2) which shows that knowledge positively impacts green behaviour.

It can thus be concluded that while knowledge of some symbols such as the Tidyman and Mobius loop are fairly good, knowledge of most of the green symbols is low and this has a significant, positive relationship with behavioural intention.

This at a knowledge level is generally low which can explain low levels of behavioural intention to purchase beverages with green symbols.

5.2.3 Objective 3: consumers' attitude toward green symbols, and its impact on green behaviour

Generally, respondents had slightly positive attitudes towards products with green symbols. Three quarters of respondents believed it was important to engage in green behaviour and two thirds of respondents believed green symbols were a good way to alert consumers of the impact on the environment while 62.8% were of the opinion that it is better to buy products with green symbols than those without; however, the bulk of the responses were centred between neutral and agree.

Respondents were undecided about the need to be persuaded to buy green symbols. These results imply that consumers hold mildly positive attitudes about green symbols, however, a large portion of consumers still need to be encouraged to purchase products with green symbols. These results are aligned with those by Eldesouky et al. (2020, p. 3), where they looked at Spanish consumers' attitudes towards food with green symbols. Their results show that as much as consumers have a positive attitude towards green labels, they still need to be convinced since there are other factors that they value which affect their purchasing behaviour such as price. The results indicate that attitude towards green symbols does not significantly affect green behaviour. These findings are in line with those studies by Nittala (2014) and Joshi and Rahman (2015) which found consumer attitude not to be significantly related to their buying behaviour of green symbols.

These results imply that consumers can hold a positive attitude about green symbols but that will not automatically lead them to buy those green products and behave in a green manner. Zhao et al. (2014, p. 144) argued that external and internal moderators may affect and weaken consumers' attitudes toward green consumption which consequently hinder green behaviour. Hence, marketers should take note of these external and internal moderators to balance and keep consumers attitudes positive and stronger to result in green behaviour. This is supported by Wang et al. (2014, p. 161) and Lorenzen (2014, p. 1065) who state that these moderators can determine how strong consumer attitude is and how which will eventually determine their behaviour.

To conclude, South African consumers' attitudes towards green symbols are moderate and they still need to be persuaded, which could explain why there are low levels of active purchasing of beverage products with green symbols.

5.2.4 Objective 4: consumers' confidence in green symbols and its impact on green behaviour

Although almost half of the respondents (56.3%) agreed that they were confident that when buying a product with green symbols, they know it causes less damage to the environment than other products, less than half of the respondents (42.8%) trust marketers' claims that their products do less damage to the environment, or trust that a green symbol really represents its environmental performance (47.4%). Overall, consumers' confidence in green symbols is weak. The level of confidence consumers have in green symbols was found to have a positive influence on their green behaviour.

These results are similar to those by Liobikienė et al. (2016, p. 39) in a study that covered all the European Union countries, where they concluded that confidence in green symbols positively affects green behaviour. They also support findings by Taufique et al. (2017, p. 511) and Sharma and Kushwaha (2019, p. 2) that report confidence in green symbols to positively affect consumers green behaviour. Thus, in the case of this South African sample, it can be concluded that the low level of confidence in green symbols may well be a reason for the relatively low levels of active purchasing of beverage products with green symbols.

5.2.5 Objective 5: the effect of demographic factors on knowledge, attitudes, confidence and behaviour relating to green symbols on beverage packaging

The demographic factors that were observed in this study were the respondents' age, gender, ethnicity, employment, educational level and location. This study found that of all the demographic factors, there were significant differences in attitude and behaviour only by ethnicity and significant differences in behaviour by educational level. The other demographic factors had no impact on the constructs.

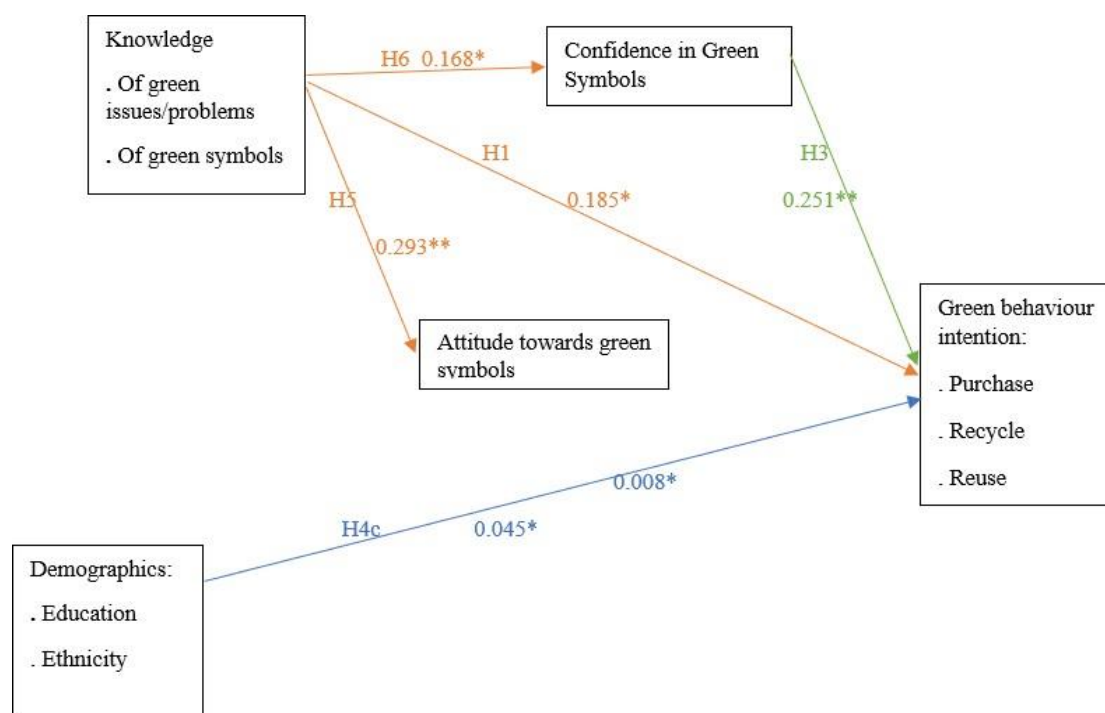
These findings support Zhao et al. (2014) who stated that demographics affect attitudes towards green symbols which influence consumers' green behaviour intentions. However, they oppose these authors' findings which showed that demographics also influence knowledge of green symbols.

Respondents with Grade 12 and a Bachelor's degree are more likely to behave in a green manner, buy buying products with green symbols, reusing and recycling them, that those respondents who do not have grade 12 and those with an Honours degree.

Asian and Indian respondents had significantly more positives attitudes towards green symbols than either Black or Coloured respondents. In terms of behaviours, Indian respondents had significantly more positive behaviour than Whites or Blacks but had the lowest behavioural intention. Thus, this shows a gap between attitude and behaviour ,that is, consumers may have positive attitude but not behave accordingly, potentially as a result of the lack of understanding of what the green symbols communicate.

5.2.6 Discussion in relation to the conceptual framework

Figure 13 below shows the correlations between variables in the conceptual model as per findings.



* Significant at 0.05, ** Significant at 0.001

Figure 13: Conceptual model variable correlations

The findings of this study showed that there were significant positive relationships between knowledge and behaviour, knowledge and attitude, knowledge and confidence, and confidence and behaviour as represented in Figure 16 above.

What the model is telling us is that if someone's confidence level and their knowledge are known then their behaviour can be predicted. This means that if knowledge of the symbols can be increased, then confidence in green symbols and behaviour can also be increased. These findings support those by Liobikienė et al. (2016, p. 39) which found that confidence is affected by the knowledge of green symbols, which means if consumers are more knowledgeable about green symbols, then they will have confidence in green products, which affects their green purchase behaviour.

The findings further support those by Sharma and Kushwaha (2019, p. 2) who studied the effectiveness of green symbols and found that knowledge of green symbols is positively associated with trust which positively affects consumer's green behaviour. Conversely, if consumers do not know about the symbols they are not going to behave in a green manner. Thus, to increase behaviour, it is necessary to increase knowledge of green symbols. The demographic variable is positively correlated with green behaviour, but not knowledge and attitude. However, its only ethnicity and educational level that affected the construct, all the other demographic variables had no significant impact on the variables.

5.3 Recommendations

5.3.1 Recommendations for marketers and government

Recommendations are made in relation to each of variables in the study found to affect green behavioural intention.

5.3.1.1 Attitudes

Related to the objective about consumers' attitude toward green symbols, and its impact on green behaviour, the study concluded that consumers hold positive attitudes about green symbols, however, they still need to be encouraged to purchase products with green symbols. It is therefore, recommended that consumers be educated for example, giving justification of higher prices associated with green products, and convincing them of the quality of green products.

5.3.1.2 Knowledge

The study found a positive correlation between knowledge, confidence and green behaviour. Consequently, if we want to increase green behaviour, we need to increase knowledge of green symbols.

In addition, in the open-ended questions of the study that determined consumers' understanding of different green symbols found in South Africa, findings revealed that there is very little knowledge of green symbols.

However, the 3 symbols, PET (S1), The Mobius Loop (S4) and Glass Symbol (S8) were the most understood symbols by respondents. This could be explained in that these symbols are self-explanatory - by just looking at them you can tell what they are communicating.

Therefore, recommendations can be made on increasing consumers' level of knowledge of green symbols by:

- Establishing educational programs in schools at different educational levels and institutions on the various green symbols and their meaning;
- Having retailers and manufacturers provide an explanation of what the symbols mean. This could involve putting an accompanying message next to the symbol explaining what the symbol really means to avoid misinterpretation and allow for increased green behaviour.

These recommendations are supported by Eldesouky et al. (2020, p. 3) who found that consumers seek knowledge on the labels, hence the information on labels must be clear and easily understandable, which could be done by a manufacturer, retailers or schools.

5.3.2 Limitations and recommendations for future research

The study used snowball sampling, a nonprobability sampling technique that limits the generalization of the findings. It is therefore recommended that future studies use probability sampling techniques which would allow for better analysis and generalization of findings although it is acknowledged that sampling frames are difficult to find for consumer studies.

This study concluded that education significantly affects green behaviour and differences were found to be between consumers with no Matric versus those with Matric, no Matric versus Bachelor's degree, and Bachelor's degree versus Honours degree. Therefore, future research can look at to what extent are environmental studies incorporated in educational institutions, looking at all educational levels.

5.4 Conclusion

In conclusion, the knowledge of green symbols is low amongst this sample of South African consumers. They may recall seeing a symbol on beverage packaging, but they have little knowledge on what the symbols mean and communicate to influence their behaviour. Consumer knowledge and confidence in green symbols positively influence behaviour. There is a positive significant relationship between knowledge, confidence and behaviour.

Attitudes were found not to affect behaviour. Moreover, only ethnicity and educational level as demographic factors affect behaviour.

Government and marketers may assist in making consumers more knowledgeable about green symbols through educational programs and explanation of green symbols by manufacturers. Future research may use probability sampling techniques to allow better analysis and generalisation of findings. It may also look at the extent to which environmental studies are incorporated in educational institutions, looking at all educational levels

It is all very well for marketers to go green and implement green marketing initiatives, but for sustainability to be achieved, consumers need to behave in a green manner. They need to buy the products with green packaging and need to respond positively to the green labels (Horne, 2009, p. 179; Pedersen & Neergaard, 2006, p. 17). If they don't understand green symbols, they are unlikely to behave in a green manner, and companies will not be influencing consumers with their green strategies, and sustainability will not be achieved. It is in all parties' interests to attempt to improve understanding of green symbols.

This study contributes to theory in understanding the role being played by knowledge in green behaviour. It provides support for the inclusion of knowledge in models of green behaviour, not only in terms of affecting green behaviour directly but in terms of its impact on attitudes and particularly confidence which also directly impacts behaviour. In addition, knowledge does not seem to be influenced by any demographics, so it is an important influencer of behaviour irrespective of age, gender, ethnicity, employment, location or education.

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APPENDICES

Appendix A: Literature review matrix

	Author, Year, Publication	Applicable theories, frameworks and models	Knowledge	Demographics					Attitude toward green symbols	Confidence in green symbols	Green behaviour		
				Gender	Age	Education	Employment	Geographic Location			Purchase	Recycle	Reuse
1.	Joshi and Rahman (2015)- Journal of International Strategic Management								1	1	1		
2.	Paul et al. (2016)								1		1		
3.	Liobikienė and Bernatoniene (2017)			1	1	1	1		1				
4.	Zhao et al. (2014)	1	1			1	1		1		1	1	1
5.	Wang et al. (2014)							1					
6.	Kang et al. (2013)								1		1		
7.	Nittala (2014)		1			1	1			1	1	1	1
8.	Jin Ma, Littrell, and Niehm (2012)	1		1	1				1				
9.	Gleim et al. (2013)		1										
10.	Liobikienė et al. (2016)	1	1						1	1	1	1	
11.	Lee et al. (2015)		1							1			
12.	Schubert et al. (2010)		1										
13.	Kim et al. (2016)		1										
14.	D'Souza et al. (2007)		1										
15.	Thøgersen et al. (2010, p. 1802)		1							1			
16.	C.-S. Tan et al. (2017, p. 462)		1						1	1			
17.	Spack et al. (2012)		1										
18.	Pagiaslis and Krontalis (2014)		1	1					1	1	1	1	1
19.	Sharma and Trivedi (2016)			1	1	1	1		1				
20.	Boztepe (2012)			1	1	1			1				
21.	Suki (2013)			1	1	1	1	1			1		
22.	Chekima, Wafa, et al. (2016)					1				1	1		
23.	Ali and Ahmad (2016)					1			1		1	1	1

24.	Ajzen (2011)	1											
25.	Kim and Han (2010).	1							1		1		
26.	Han et al. (2010)	1									1		
27.	Salazar et al. (2013)						1						
28.	Carrete et al. (2012)							1					
29.	Kalantari and Asadi (2010)							1					
30.	Liu et al. (2012)							1					
31.	Yang and Zhang (2020)							1					
32.	De Koning et al. (2015)							1					
33.	Newton et al. (2015)								1	1			
34.	Koenig-Lewis et al. (2014)								1	1			
35.	Strauss and Kleine Stüve (2016)									1			
36.	Zareie and Navimipour (2016)		1										
37.	Noor et al. (2012)		1										
38.	Petel, et al. (2017)			1									
39.	Yang et al. (2015)										1		
40.	Yang (2016)										1		
41.	Joshi and Rahman (2015)										1		
42.	Mishal et al. (2017)										1	1	1
43.	Long (2019)										1	1	1
44.	Tan et al. (2016)										1	1	1
45.	Viviers et al. (2019)										1	1	1
46.	Grant et al. (2018)										1	1	
47.	Sharma and Garga (2014)			1	1	1	1	1					
48.	Datta (2011)										1		

Appendix B: Questionnaire

CONSUMER UNDERSTANDING OF GREEN SYMBOLS ON BEVERAGE PACKAGING AND ITS INFLUENCE ON GREEN BEHAVIOUR

Section A

Frequency of buying

Q1. Please place an X for the most correct answer.

Question	Never	Very Occasionally	At least once a month	At least once a week	Several times a week
1. How often do you buy water?					
2. How often do you buy energy drinks?					
3. How often do you buy fruit juice?					
4. How often do you buy soft drinks?					

Buying behaviour


Q2. Please indicate your level of agreement with the following statements. With reference to non-alcoholic beverages:



Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I buy products with green symbols	1	2	3	4	5
2. I buy products that can be re-used	1	2	3	4	5
3. I buy products that can be recycled	1	2	3	4	5






Section B


Knowledge

Q3. Below are different symbols found on packaging of non-alcoholic beverages. Please place an X for your level of agreement with each statement. No answer is considered incorrect. Your honesty is appreciated. Please also indicate what the symbol means when you know these.

Symbol		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	i. I know the name of the symbol	1	2	3	4	5
	ii. I recall seeing the symbol on non-alcoholic beverage packaging	1	2	3	4	5
	iii. I know the meaning of the symbol. It means: _____	1	2	3	4	5
	i. I know the name of the symbol	1	2	3	4	5

	ii. I recall seeing the symbol non-alcoholic beverage packaging	1	2	3	4	5
	iii. I know the meaning of the symbol It means: _____	1	2	3	4	5
	i. I know the name of the symbol	1	2	3	4	5
	ii. I recall seeing the symbol on non-alcoholic beverage packaging	1	2	3	4	5
	iii. I know the meaning of the symbol It means: _____	1	2	3	4	5

	i. I know the name of the symbol	1	2	3	4	5
	ii. I recall seeing the symbol on non-alcoholic beverage packaging	1	2	3	4	5
	iii. I know the meaning of the symbol It means: _____	1	2	3	4	5
	i. I know the name of the symbol :	1	2	3	4	5
	ii. I recall seeing the symbol on non-alcoholic beverage packaging	1	2	3	4	5
	iii. I know the meaning of the symbol It means: _____	1	2	3	4	5
	i. I know the name of the symbol :	1	2	3	4	5
	ii. I recall seeing the symbol on non-alcoholic beverage packaging	1	2	3	4	5
	iii. I know the meaning of the symbol It means: _____	1	2	3	4	5
	i. I know the name of the symbol :	1	2	3	4	5
	ii. I recall seeing the symbol on non-alcoholic beverage packaging	1	2	3	4	5
	iii. I know the meaning of the symbol It means: _____	1	2	3	4	5
	i. I know the name of the symbol :	1	2	3	4	5
	ii. I recall seeing the symbol on non-alcoholic beverage packaging	1	2	3	4	5

	iii. I know the meaning of the symbol It means: _____	1	2	3	4	5
	i. I know the name of the symbol :	1	2	3	4	5
	ii. I recall seeing the symbol on non-alcoholic beverage packaging	1	2	3	4	5
	iii. I know the meaning of the symbol It means: _____	1	2	3	4	5

Section C

Attitude

Q4. Please place an X for your level of agreement with each statement relating to your attitude and confidence toward green symbols.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. It is better to buy products with green symbols than those with no green symbols	1	2	3	4	5
2. Green symbols are a good way to alert consumers of their pollution to the environment	1	2	3	4	5
3. There is no need to persuade me to get involved in green behaviour because I am already buying products with green symbols	1	2	3	4	5
4. It seems very attractive to purchase products with green symbols	1	2	3	4	5
5. It is very important to actively engage in green behaviour	1	2	3	4	5
6. I support products with green symbols by buying them	1	2	3	4	5
Confidence					
7. I am confident that when I buy a product with green symbols, it will cause less damage to the environment than other products	1	2	3	4	5
8. I trust marketers claims that their products are less damaging to the environment	1	2	3	4	5
9. I trust that each green symbol is a true representation of its environmental performance	1	2	3	4	5

Section D: Demographics

Please complete this section by placing an X next to the most appropriate answer

1. Age

☐ 18-20yrs ☐ 21- 29 yrs. ☐ 30- 39 yrs. ☐ 40- 49 yrs. ☐ 50- 60 yrs. ☐ >60yrs

2. Gender

☐ Male ☐ Female

3. Ethnicity

☐ Asian ☐ Black ☐ Coloured ☐ Indian ☐ White

4. Employment

☐ I am employed ☐ I am unemployed

5. Location

☐ Rural ☐ Urban

6. Education level

☐ No matric ☐ Grade 12 ☐ Bachelor's degree ☐ Honours degree ☐ Master's degree
☐ PhD

The end of the questionnaire. Thank you. Your participation is much appreciated.

Appendix C: Ethical approval letter



25 September 2020

Miss Sinegugu Samukelile Dumakude (212536376)
School Of Man Info Tech & Gov
Pietermaritzburg Campus

Dear Miss Dumakude,

Protocol reference number: HSSREC/00000006/2019

New Project title : Consumer understanding of green symbols on beverage packaging and its influence on green behaviour

Degree: Masters

Approval Notification – Amendment Application

This letter serves to notify you that your application and request for an amendment received on 17 September 2020 has now been approved as follows:

- Change in title

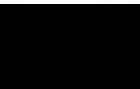
Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form; Title of the Project, Location of the Study must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

Best wishes for the successful completion of your research protocol.






Yours faithfully



Professor Dipele Hlalele (Chair)

/dd

Humanities & Social Sciences Research Ethics Committee
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Tel: +27 31 260 8350 / 4557 / 3587
Website: <http://research.ukzn.ac.za/Research-Ethics/>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

Appendix D: Informed Consent

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL

For research with human participants

Information Sheet and Consent to Participate in Research

Date:

Greetings,

My name is Sinegugu Dumakude from the University of KwaZulu-Natal (UKZN), PMB campus, College of Law & Management. I can be reached on 0769890482 or email: snegugu.dumakude@gmail.com.

You are being invited to participate in a study that involves research on consumer understanding of green symbols on beverage packaging and its influence on green behaviour.

The aim and purpose of this research is to evaluate consumer understanding of green symbols on beverage packaging and the implications for green behaviour. In addition, to find out if responses by marketers to environmental crisis by the placement of green symbols on packaging are effective. The study is expected to include 1100 participants in total. It will involve the following procedures: please read the questionnaire and after completion please pass the questionnaire link to your 3 other friends on Facebook, those of the same demographics as you and ask them to please send the questionnaire to other 2 of their friends as well. Please ask them to click the link and fill in the questionnaire. Once you have completed the questionnaire please press complete and your feedback will be sent to me. The duration of your participation if you choose to participate and remain in the study is expected to be not more than 30 minutes. The study is funded by National Research Foundation (NRF).

The study does not involve any risks and will provide no direct benefits to participants. However, your participation and responses will help in identifying suggestions that may help minimise environmental issues such as climate change affecting the world.

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number_).

In the event of any problems or concerns/questions you may contact the researcher at (provide contact details) or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban 4000 KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557- Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

Your participation in the study is voluntary and by participating, you are granting the researcher permission to use your responses. You may refuse to participate or withdraw from the study at any time with no negative consequence. There will be no monetary gain from participating in the study. Your anonymity will be maintained by the researcher and the School of Management, I.T. & Governance and your responses will not be used for any purposes outside of this study.

All data, both electronic and hard copy, will be securely stored during the study and archived for 5 years. After this time, all data will be destroyed.

If you have any questions or concerns about participating in the study, please contact me or my research supervisor at the numbers listed above.

Sincerely

Sinegugu Dumakude



CONSENT TO PARTICIPATE

I _____ (Name in full) have been informed about the study entitled
consumer understanding of green symbols on beverage packaging and its influence on green behaviour

By Sinegugu Dumakude.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting
any of the benefits that I usually am entitled to.

If I have any further questions/concerns or queries related to the study I understand that I may contact the
researcher on 0769890482 or email: snegugu.dumakude@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of
the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557 - Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

Signature of Participant

Date

Appendix E: Letter from the language editor



30th of October 2020

To whom it may concern

EDITING OF DISSERTATION FOR MISS SINEGUGU SAMUKEILE DUMAKUDE

I have a master's degree in Social Science, Research Psychology and a TEFL qualification from UKZN. I also have an undergraduate and honour's degree Bachelor of Arts in Health Sciences and Social Services from UNISA.

I have 15 years of teaching experience and have been editing academic theses for students from UKZN, UNISA, the University of Fort Hare, and DUT for the past seven years. I have further done editing, transcribing and other research work for private individuals and businesses.

I hereby confirm that I have edited Snegugu Dumakude's dissertation titled **"Consumer understanding of green symbols on beverage packaging and its influence on green behaviour"** for submission of her master's dissertation in Commerce (Marketing) at the University of KwaZulu-Natal. Corrections were made in respect of grammar, tenses, spelling and language usage using track changes in MS Word 2013. Once corrections have been attended to, the dissertation should be correct.

Yours sincerely

Terry Shuttleworth (Tefl, UKZN, MSocSc, Res Psych, UKZN).

PLEASE NOTE

Should the student not attend to the changes suggested by the editor and make additions to the dissertation after editing has been completed, the editor cannot guarantee the language, grammar and tenses are correct.